

"The info that Brad (Lawrence) shared was meant to let other WARNs know that (Fort Pierre was) looking at a potential flood," said Morley, describing the genesis of the correspondence.

The email trail began with Lawrence's concerns about the excessive amount of runoff and winter snow pack that would soon be melting.

"In April 2009, the inflow to the Oahe (Dam) was 140,000 cubic feet per second," he said. "That would be a flood of biblical proportions here and downstream" were the Corps forced to pass that incoming water downriver. In fact, the current release rate of 150,000 cfs is the most ever released and will continue until mid-August.

But Farhat said even if the Corps had been aware of Lawrence's concerns, its models did not predict the event he envisioned. Farhat said the Corps' studies, even as late as May 1, showed above average snow pack in that last "week or two" of April.

"We were not anticipating these historic (release) levels by any stretch of the imagination until that perfect storm and rainfall we had," said Farhat. On May 20 Farhat said there was an "incredibly large" amount of rainfall over eastern Montana.

"Flows on the Yellowstone River went to record level," said Farhat. "That runoff from rainfall filled up the storage in the reservoir that we had intended to use for the snowmelt."

Lawrence also anticipated in February that the downriver states not directly affected by all the moisture would become affected when the runoff reaches them.

But Farhat maintains that the Corps was not "unduly concerned" about water releases until the May rainfall.

"I understand the whole realm of issues (the Corps must consider), but when you're number one job is flood control, you need to focus on that," said Lawrence.

Farhat said the Corps monitors snow pack on the plains and in mountains in winter months. They then build on to their model the range of potential runoff and set the releases based on what is needed for the reservoirs of the six dams.

"Flood control was the primary factor for the releases," said Farhat.

Lawrence maintains that when the Omaha District USACE is notified of flaws they are sometimes unresponsive unless the city notifying them has a study to support their information, something that can be prohibitively expensive.

"There are other instances where I have proven the Corps wrong on their hydraulic modeling and it is documented," said Lawrence. "Now that we have (released) much more water than what they predicted . . . they cannot hide from the fact that they were dead wrong."

Levees in Fort Pierre continue to hold but groundwater and city water and utilities will need to continue to be monitored until flooding has subsided.

Sen. Tim Johnson, D-S.D., said on June 2 "I believe there will probably be some kind of hearing with Congress in the future (regarding the Corps)."

Excerpts of emails between Fort Pierre Public Works Director Brad Lawrence and a Washington, D.C. agency warning of flood consequences if water was not released early from the Oahe Dam

- Feb. 3 email from Brad Lawrence to Kevin Morley:

"I anticipate significant flooding from the Missouri River to the East Coast on nearly every significant river. This may be one for the record books.

I am including the Missouri River in that tally at this time. The Corps of Engineers has failed thus far to evacuate enough water from the main stem reservoirs to meet normal runoff conditions. This year's run off will be anything but normal. This is compounded by the anticipated flooding downstream. The Corps will hold back water to help alleviate the downstream flooding; filling the reservoirs to capacity in the process. Once full, they will pass everything that comes in. In April 2009 the inflow to Oahe was 140,000 cfs. That would be a flood of biblical proportions here and downstream.

I would also anticipate that those states that are down stream and not affected directly by all this moisture will become affected when the runoff reaches them.

I will guarantee that the James River and Big Sioux River in SD will flood. The Red and James in ND along with many tributaries to the Missouri River will flood. Everything in MN including the Mississippi looks like it is primed to flood; especially the Minnesota River.

It looks like this most recent storm went right down the Ohio River Valley. That can't be good for that system."

- Feb. 22 email from Kevin Morley to all WARN chairs:

"WARNS in Midwest should be getting ready for Flooding. Any water treatment or wastewater plant along any of these rivers should be ready for flooding...meaning preparing to implement a flood action plan and a recovery plan. Any electrical equipment below the 500 year flood line could be considered at risk and any of it below the 100 year flood line is at greater risk."

- April 26 email from Brad Lawrence to Kevin Morley:

"At this time, we are on pace to max out the local reservoir. The water content of the mountain snow pack is double what it was last year. That means that high discharges will occur for most of the summer and possibly into the fall season."

- May 6 email from Brad Lawrence to Kevin Morley:

"If you compare year over year, we are at double the water content for this same time last year in mountain snow pack. That will account for about 1/3 of our total runoff this year and is substantially more than in years past. That is assuming that we get enough warmth this summer to melt it all. We failed to melt all the snow last summer, so it is entirely possible that we will build more year round snow pack, AKA the making of a glacier."

<http://www.capjournal.com/articles/2011/06/14/news/doc4df6d00c78f8c907147522.txt>



[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Wednesday, June 15, 2011 4:30 PM  
**To:** Ruckman, Jody L NWO; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** Schenk, Kathryn M NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
NWD02; Bertino, John J Jr NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO  
**Subject:** FW: Flood Report #13 Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

All:

Releases from Fort Peck Dam continue at 65,000 cfs with 13,000 cfs through the power plants and 52,000 cfs through the spillway. Fort Peck pool elevation was 2252.27 at 0700 today. There were no changes from yesterday. No issues were noted on the dam or spillway in the last twenty-four hours.

Engineers Carl Harms and Justin Ketelsen departed the Fort Peck Project and Engineers Curtis Miller and Cory Hansen arrived. Larry Boardman and Kevin Pavlik continue to assist the project.

[REDACTED] is assisting Fort Peck Tribes at Wolf Point today.

Electrical Power to the spillway should be restored this evening or in the morning.

[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Farmer, Monique L NWO  
**Sent:** Wednesday, June 15, 2011 4:27 PM  
**To:** O'Hara, Thomas A NWO; Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWK  
**Subject:** RE: request for additional ESF-15 personnel in KC (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Please provide the most recent version of the Spring Pulse Como Plan for 2011.

Thanks,

Monique

-----Original Message-----

**From:** O'Hara, Thomas A NWO  
**Sent:** Wednesday, June 15, 2011 4:17 PM  
**To:** Farmer, Monique L NWO  
**Cc:** [REDACTED] NWK  
**Subject:** FW: request for additional ESF-15 personnel in KC

Monique

Do you know where this com plan is Trish is referring to?

(Currently working Missouri Floodflight efforts. I will reply to your email as I can)  
BUILDING STRONG®

Thomas A. O'Hara III  
Executive Officer  
Omaha District, U.S. Army Corps of Engineers  
1616 Capitol Avenue, Suite 9000  
(Attn: CENWO-EX-XA)  
Omaha, NE 68102-4901  
402-995-2004  
[thomas.a.ohara@usace.army.mil](mailto:thomas.a.ohara@usace.army.mil)

-----Original Message-----

**From:** [REDACTED] NWK  
**Sent:** Wednesday, June 15, 2011 4:12 PM  
**To:** O'Hara, Thomas A NWO  
**Subject:** RE: request for additional ESF-15 personnel in KC

Any chance you can find me the 2011 Gavins Point Spring Pulses Communication Plan? I have 2010, but looking for all updated info.

Thx!

Classification: UNCLASSIFIED

**NWO**

---

**From:** Ruch, Robert J COL NWO  
**Sent:** Wednesday, June 15, 2011 4:26 PM  
**To:** Farmer, Monique L NWO; Farhat, Jody S NWD02  
**Subject:** RE: NPR (D.C.) Radio Interview (UNCLASSIFIED)

None here.

-----Original Message-----

**From:** Farmer, Monique L NWO  
**Sent:** Wednesday, June 15, 2011 4:25 PM  
**To:** Farhat, Jody S NWD02; Ruch, Robert J COL NWO  
**Subject:** NPR (D.C.) Radio Interview (UNCLASSIFIED)

**Classification:** UNCLASSIFIED  
**Caveats:** NONE

NPR would like to send a live technician to record the voice for better sound. Any objections to this?

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of  
Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

**Classification:** UNCLASSIFIED  
**Caveats:** NONE

**NWO**

---

**From:** Farmer, Monique L NWO  
**Sent:** Wednesday, June 15, 2011 4:25 PM  
**To:** Farhat, Jody S NWD02; Ruch, Robert J COL NWO  
**Subject:** NPR (D.C.) Radio Interview (UNCLASSIFIED)

Classification: UNCLASSIFIED  
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Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of  
Engineers Omaha District  
(402) 996-3877  
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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 8:33 AM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson,  
G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T.  
NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen  
L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED]  
NWD; H [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; Love,  
Raymond E MAJ NWD; [REDACTED] NWO; K [REDACTED] NWG; [REDACTED] M SAW  
**Cc:** [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWO;  
[REDACTED] NWD02; L [REDACTED] NWD02; [REDACTED]; Rosemary C NWD02;  
[REDACTED] NWD02; [REDACTED] NWO; [REDACTED] M NWD02  
**Subject:** RE: WM Talking Points for 14 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 14 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

These are yesterday's talking point which I forgot to send out.

Thanks

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Monday, June 13, 2011 4:31 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED], J [REDACTED] NWD; [REDACTED] J NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED]; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] S NWO; [REDACTED] SAW  
Cc: [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] A NWD02; Mc [REDACTED] F. Jr NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] C NWD02; [REDACTED] NWD02; [REDACTED], Ronald S NWO; [REDACTED] NWD02  
Subject: RE: WM Talking Points for 13 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Sunday, June 12, 2011 3:55 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] SAW  
Cc: [REDACTED] NWD02; [REDACTED] Michael A NWD02; M [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] C NWD02; [REDACTED] D NWD02; [REDACTED] NWO; [REDACTED] M NWD02  
Subject: RE: WM Talking Points for 12 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**14 June 2011**

We posted the updated reservoir forecast to the web this afternoon. The only adjustment once again was in releases was at Fort Randall where we are holding releases a little lower than planned to manage the Gavins Point pool level.

We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases. The anticipated peak releases remain the same: 65,000 cfs at Fort Peck, and 150,000 cfs at the lower 5 dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases were increase to 65,000 cfs today and will be held at that level.
- Garrison –140,000 cfs today, holding that level on Wednesday, increasing to 145,000 cfs on Thursday and reaching the peak release of 150,000 cfs on Friday.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs by the end of the week.
- Gavins Point – reached the peak release of 150,000 cfs today.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 73%

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 82%

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 60%

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 59%

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 12:11 PM  
**To:** Charlie\_Scott@fws.gov  
**Subject:** RE: NW CE public information on MO River releases/flooding - Facebook or web?  
(UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Charlie,

The Omaha and Kansas City Districts are utilizing all the social media formats (facebook, twitter, u-tube, etc). You can get to them via links from their flood fight websites shown below.

<http://www.nwo.usace.army.mil/html/op-e/flood.html>

<http://www.nwk.usace.army.mil/Flood/index.cfm>

We've also set up a Joint Information Center (JIC) to field calls from the public and others. And there is a 5 p.m. stakeholder call each day for Congressional, state, local, tribal and media reps to dial into. The NWS and Corps provide updates including a Water Management update from me, and then we answer questions from participants. If you or other FWS personnel want to dial in, send an email to [mrjic@usace.army.mil](mailto:mrjic@usace.army.mil) and ask to be added to the email list so you'll get a call-in reminder every day. In case you want to dial in today and don't hear back from them in time (or just don't want a daily reminder) the phone number is below.

Reminder: The daily call will occur at 5 p.m. CT. Call in information is as follows:

877-336-1828  
Access Code: 1054750#  
Security Code: 1234#

Thanks,  
Jody

-----Original Message-----

From: Charlie\_Scott@fws.gov [mailto:Charlie\_Scott@fws.gov]  
Sent: Wednesday, June 15, 2011 11:57 AM  
To: Farhat, Jody S NWD02  
Subject: NW CE public information on MO River releases/flooding - Facebook or web?

Jody,

One more question. Is the CE communicating with public via webpage and emails or have they set up a Facebook page like CE did back in May for the flooding on the Lower Miss. River/operation of the New Madrid Floodway?  
That Facebook page was very helpful to us and I know it was to the public in general. Here is that Facebook link in case NW Div. folks are interested in doing something similar. If communication via web, is one site better than other for updates, etc.?



Charlie

<http://www.facebook.com/BPNMFloodway>

----- Forwarded by Charlie Scott/R3/FWS/DOI on 06/15/2011 11:52 AM -----

Charlie  
Scott/R3/FWS/DOI

06/15/2011 11:36  
AM

"Farhat, Jody S NWD02"  
<Jody.S.Farhat@usace.army.mil>

To

cc

Subject

RE: simple description on CE  
website of MO River flood  
operations (UNCLASSIFIED)(Document  
link: Charlie Scott)

Jody,

Thanks. The briefing document will be helpful. Hang in there!

"Farhat, Jody S  
NWD02"  
<Jody.S.Farhat@us  
ace.army.mil>

06/14/2011 06:18  
PM

<Charlie\_Scott@fws.gov>

To

cc

Subject

RE: simple description on CE  
website of MO River flood  
operations (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Charlie, we've posted a flood briefing on the front page of our web site that may be useful, otherwise I would refer you to the Master Manual Section

7-04

for a discussion of flood control regulation.

In case you don't have them, the links are below:

Thanks,  
Jody

<http://www.nwd-mr.usace.army.mil/rcc/>

<http://www.nwd-mr.usace.army.mil/rcc/reports/mmanual/MasterManual.pdf>

-----Original Message-----

From: Charlie\_Scott@fws.gov [mailto:Charlie\_Scott@fws.gov]

Sent: Tuesday, June 14, 2011 3:47 PM

To: Farhat, Jody S NWD02

Subject: simple description on CE website of MO River flood operations

Jody,

I had a request within FWS for general description of water control/flood operations - was there anything on CE website. I did some checking on NW Div. website and found all the sites relating to AOP, Project Orders, Standing Orders, and Master Manual (although I did not see a specific webpage for the MM but I could download the MM). Is there a short, succinct summary somewhere on CE website I can direct folks? Just checking  
- no big priority with all the stuff you all have happening now. If you have a link you could email me that would be fine. Thanks.

Charlie

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 2:15 PM  
**To:** Chris.Bjorke@bismarcktribune.com  
**Cc:** Gross, Sarah LRC  
**Subject:** RE: Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Chris - thanks for checking the accuracy of the statement below.

The statement below is factually incorrect! The Corps is maintaining full control of the releases from Fort Peck Dam. The powerplant at Fort Peck has very little discharge capacity, about 15,000 cfs, so anytime we need to release more than 15,000 cfs we utilize the spillway. An additional added benefit of utilizing the spillway is that when the spillway gates are raised uniformly, the reservoirs can gain additional storage. For example, at the Fort Peck Dam, raising the 16 spillway gates 2 feet, allows the top reservoir elevation to increase from an elevation of 2250 to 2252. The two feet of elevation increases the reservoir storage capacity by 494,000 acre feet. The engineering term for this additional storage is surcharge. Use of the spillway does not in any way impact the structural integrity of the dam.

Regards,  
Jody

-----Original Message-----

**From:** Gross, Sarah LRC  
**Sent:** Wednesday, June 15, 2011 1:53 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hello, Jody, Chris Bjorke with the Bismarck Tribune would like a verification to the below article items.

Also, he wants to know the max elevation of the reservoirs and to clarify how the forecast elevations at Garrison Dam and Fort Peck can exceed the max full elevation (based on Web information).

-----Original Message-----

**From:** Chris Bjorke [<mailto:Chris.Bjorke@bismarcktribune.com>]  
**Sent:** Wednesday, June 15, 2011 12:05 PM  
**To:** Gross, Sarah LRC  
**Subject:** Article about corps river control

Hello Sarah. I can't give you full article until tomorrow, unfortunately, but here is the part I want to verify.

"As of June 14, 2011, Fort Peck reservoir was at 114.2 percent of capacity. The lake is so full that water is now flowing through the dam's emergency spillway.

Because the Army does not have the ability to halt the flows through the spillway without threatening the structural integrity of the dam, the dam and reservoir have lost the ability to curtail the Missouri."

Here is the author's information:

Robert Kelley Schneiders, Ph.D., is an environmental historian with Eco InTheKnow, LLC, P.O. Box 4393, Boulder, CO 80306, [www.ecointheknow.com](http://www.ecointheknow.com).

Here is my contact info, thanks.

Christopher Bjorke  
Business reporter  
The Bismarck Tribune  
701-250-8261

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 2:16 PM  
**To:** Farmer, Monique L NWO  
**Subject:** RE: Response to Todd Porter's letter, and Graves' letter (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

It's nearly done. I'll send you the pdf when it gets signed.

-----Original Message-----

From: Farmer, Monique L NWO  
Sent: Wednesday, June 15, 2011 2:11 PM  
To: Farhat, Jody S NWD02  
Subject: Response to Todd Porter's letter, and Graves' letter (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody:

Did you ever send the response to Porter's letter. Would you mind sharing? Would it be OK for me to adapt those messages to respond to reporter Dale Wetzel.

Also,

Would you mind sending me the response you sent to Graves?

Thanks,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 2:33 PM  
**To:** Church, Clayton A SWF; Johnston, Paul T HQ@ NWO  
**Cc:** [REDACTED] HQ02; [REDACTED] NWO; [REDACTED] NWO; Gross, Sarah LRC  
**Subject:** RE: Call from Bjorke with Bismarck Tribune (UNCLASSIFIED)  
**Attachments:** RE: Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

I just responded directly to Mr. Bjorke (see attached email) regarding a request that came into the JIC on this same subject. Please tell him to call me directly if he needs further clarification. The information in the opinion piece is totally incorrect and will create havoc.

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)

Office: 402-996-3840

Cell: 402-350-1417

-----Original Message-----

**From:** Church, Clayton A SWF  
**Sent:** Wednesday, June 15, 2011 2:27 PM  
**To:** Johnston, Paul T HQ@ NWO; Farhat, Jody S NWD02  
**Cc:** [REDACTED] HQ02; [REDACTED] NWO; [REDACTED] NWO  
**Subject:** Call from Bjorke with Bismarck Tribune (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Paul/Jody:

Had a call this afternoon from Christopher Bjorke with the Bismarck Tribune who wanted me to comment on an opinion piece from an environmental historian concerning the structural integrity of the Fort Peck Dam that will appear in tomorrow's edition. Chris refused to send me the piece in its entirety so I refused to comment on it.

He also asked about the three week forecast of inflows to Peck and Garrison in the fact there is more coming in than the structures will hold. I explained what COL Ruck talked on the CODEL call yesterday about surcharge pools and he was happy with that. Questions are: Does Fort Peck have the same capability with raising the gates will allow that number of additional feet of storage capability? How or what does allowing that additional surcharge storage do to the cfs being discharged?

Thanks.

-Clay  
682-429-7662

Classification: UNCLASSIFIED

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 2:15 PM  
**To:** 'Chris.Bjorke@bismarcktribune.com'  
**Cc:** Gross, Sarah LRC  
**Subject:** RE: Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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Regards,  
Jody

-----Original Message-----

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Sent: Wednesday, June 15, 2011 1:53 PM  
To: Farhat, Jody S NWD02  
Subject: Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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Also, he wants to know the max elevation of the reservoirs and to clarify how the forecast elevations at Garrison Dam and Fort Peck can exceed the max full elevation (based on Web information).

-----Original Message-----

From: Chris Bjorke [<mailto:Chris.Bjorke@bismarcktribune.com>]  
Sent: Wednesday, June 15, 2011 12:05 PM  
To: Gross, Sarah LRC  
Subject: Article about corps river control

Hello Sarah. I can't give you full article until tomorrow, unfortunately, but here is the part I want to verify.

"As of June 14, 2011, Fort Peck reservoir was at 114.2 percent of capacity. The lake is so full that water is now flowing through the dam's emergency spillway.

Because the Army does not have the ability to halt the flows through the spillway without threatening the structural integrity of the dam, the dam and reservoir have lost the ability to curtail the Missouri."

Here is the author's information:

Robert Kelley Schneiders, Ph.D., is an environmental historian with Eco InTheKnow, LLC, P.O. Box 4393, Boulder, CO 80306, [ww.ecointheknow.com](http://www.ecointheknow.com).

Here is my contact info, thanks.

Christopher Bjorke  
Business reporter  
The Bismarck Tribune  
701-250-8261

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 2:49 PM  
**To:** Blair, Amy E NWK  
**Subject:** RE: Another question, for marketing (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We don't have a good handle on those numbers yet. We have a model that computes unregulated flows at St. Joe, but since the recent peak inflows occurred so recently the model hasn't routed those down to St Joe yet. What we can say is that the reservoirs reduced peak flows by more than 120,000 cfs in early April, from 210,000 cfs to about 82,000 cfs. The reservoirs are continuing to gain storage every day and therefore even at these high releases, flows would have been higher than is currently being experienced. When we get the peak unregulated flows computed, we will let folks know.

Jody

-----Original Message-----  
**From:** Blair, Amy E NWK  
**Sent:** Wednesday, June 15, 2011 12:27 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: Another question, for marketing (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any idea on this answer? Thanks for your patience with these questions.

-----Original Message-----  
**From:** Klippenstein, Brian (Blunt) [<mailto:Brian.Klippenstein@blunt.senate.gov>]  
**Sent:** Wednesday, June 15, 2011 12:26 PM  
**To:** Blair, Amy E NWK  
**Subject:** Another question, for marketing

Again, VERY general, suppose we did not have regulated system, any ball park estimate, or an anecdote or two on what we would be looking at?

We would like to have boss say: "look, if it weren't for this system, we could see record 700k cfs passing STJ unregulated overtopping all urban levees and Rosecrans as well as.....". FOR EXAMPLE.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 3:46 PM  
**To:** 'Chris.Bjorke@bismarcktribune.com'; Church, Clayton A SWF  
**Subject:** Re: Need Verification: Article about corps river control (UNCLASSIFIED)

That is correct. We are raising the gates not making any structural changes to them.

Again, thanks for checking.

Jody

----- Original Message -----

**From:** Chris Bjorke <[Chris.Bjorke@bismarcktribune.com](mailto:Chris.Bjorke@bismarcktribune.com)>  
**To:** Farhat, Jody S NWD02; Church, Clayton A SWF  
**Sent:** Wed Jun 15 13:27:40 2011  
**Subject:** RE: Need Verification: Article about corps river control (UNCLASSIFIED)

Another thing: This site is reporting that the corps is "building up" the spillway gates. The gates are simply being raised, correct?

"Last night the US Army Corps of Engineers announced that it was building up the Garrison Dam's 28 spillway gates by 1 foot, from an elevation level of 1854 to 1855 feet above sea level, to increase its reservoir's storage capacity level. The higher surcharge will result in the ability to store an additional 380,000 acre feet of water, as the rains and snow melt continue to build in the upper Missouri River."

<http://plainsdaily.com/entry/army-corps-builds-up-garrison-to-add-extra-foot-of-freeboard/>

-----Original Message-----

**From:** Farhat, Jody S NWD02 [<mailto:Jody.S.Farhat@usace.army.mil>]  
**Sent:** Wednesday, June 15, 2011 2:15 PM  
**To:** Chris Bjorke  
**Cc:** Gross, Sarah LRC  
**Subject:** RE: Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Chris - thanks for checking the accuracy of the statement below.

The statement below is factually incorrect! The Corps is maintaining full control of the releases from Fort Peck Dam. The powerplant at Fort Peck has very little discharge capacity, about 15,000 cfs, so anytime we need to release more than 15,000 cfs we utilize the spillway. An additional added benefit of utilizing the spillway is that when the spillway gates are raised uniformly, the reservoirs can gain additional storage. For example, at the Fort Peck Dam, raising the 16 spillway gates 2 feet, allows the top reservoir elevation to increase from an elevation of 2250 to 2252. The two feet of elevation increases the reservoir storage capacity by 494,000 acre feet. The engineering term for this additional storage is surcharge. Use of the spillway does not in any way impact the structural integrity of the dam.

Regards,  
Jody

-----Original Message-----

From: Gross, Sarah LRC  
Sent: Wednesday, June 15, 2011 1:53 PM  
To: Farhat, Jody S NWD02  
Subject: Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hello, Jody, Chris Bjorke with the Bismarck Tribune would like a verification to the below article items.

Also, he wants to know the max elevation of the reservoirs and to clarify how the forecast elevations at Garrison Dam and Fort Peck can exceed the max full elevation (based on Web information).

-----Original Message-----

From: Chris Bjorke [<mailto:Chris.Bjorke@bismarcktribune.com>]  
Sent: Wednesday, June 15, 2011 12:05 PM  
To: Gross, Sarah LRC  
Subject: Article about corps river control

Hello Sarah. I can't give you full article until tomorrow, unfortunately, but here is the part I want to verify.

"As of June 14, 2011, Fort Peck reservoir was at 114.2 percent of capacity.  
The lake is so full that water is now flowing through the dam's emergency spillway.

Because the Army does not have the ability to halt the flows through the spillway without threatening the structural integrity of the dam, the dam and reservoir have lost the ability to curtail the Missouri."

Here is the author's information:

Robert Kelley Schneiders, Ph.D., is an environmental historian with Eco InTheKnow, LLC, P.O. Box 4393, Boulder, CO 80306, [ww.ecointheknow.com](http://ww.ecointheknow.com).

Here is my contact info, thanks.

Christopher Bjorke  
Business reporter  
The Bismarck Tribune  
701-250-8261

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**Burke, Linda** NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 3:54 PM  
**To:** **[REDACTED]** NWO  
**Subject:** RE: Noem request (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We've been operating for flood damage reduction since last summer. Kim can tell you when the EOC was activated.

-----Original Message-----

**From:** Eckert Uptmor, Kayla A NWO  
**Sent:** Wednesday, June 15, 2011 3:33 PM  
**To:** Farhat, Jody S NWD02; Thomas, Kimberly S NWO  
**Subject:** Noem request

Jody/Kim: Congresswoman Noem has a constituent that stated that the Corps put themselves on flood alert on 1 March. This is NOT true, correct?

**[REDACTED]**  
**[REDACTED]**  
**[REDACTED]**  
US Army Corps of Engineers  
Omaha District  
1616 Capitol Avenue  
Omaha, NE 68102-4901  
402. **[REDACTED]** (o)  
402. **[REDACTED]** (c)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 4:54 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] S NWO; [REDACTED] M SAW  
**Cc:** [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] D NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] D NWD02; [REDACTED] NWO; [REDACTED] M NWD02  
**Subject:** RE: WM Talking Points for 15 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 15 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**15 June 2011**

We posted the updated reservoir forecast to the web this afternoon. The only adjustment once again was in releases at Fort Randall where we continue to adjust releases to manage the Gavins Point pool level.

We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases. The anticipated peak releases remain the same: 65,000 cfs at Fort Peck, and 150,000 cfs at the lower 5 dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases remain at 65,000 cfs today and will be held at that level through the weekend. We expect to reduce those releases back to 60,000 cfs next week as inflows drop off.
- Garrison –140,000 cfs today, increasing to 145,000 cfs on Thursday and reaching the peak release of 150,000 cfs on Friday.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.
- Gavins Point – reached the peak release of 150,000 cfs yesterday and will remain at that level.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 70%

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 78%

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 60% ydy

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 59% ydy

[REDACTED] NWO

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 6:07 PM  
**To:** [REDACTED] NWD02  
**Subject:** RE: St. Louis District Press Conference Tomorrow Regarding Missouri River (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I got it to work... thanks

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 15, 2011 4:17 PM  
**To:** Blechinger, Erik T NWO  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWK; 'Kevin Low'  
**Subject:** FW: St. Louis District Press Conference Tomorrow Regarding Missouri River (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Erik,

The Kansas City District, in collaboration with the National Weather Service Office and the MRBWM office, agreed to the following description regarding the low flow and high flow scenarios and as the 3 bullets of information used in developing range projections. It is posted on the NWK external website:

<http://www.nwk.usace.army.mil/Flood/SitRep/2011ProjectedMORiverWSELS-KCD%206-15.pdf>

We're hoping that you will be able to coordinate this information with MVS PAO for their press conference tomorrow morning so that the National Weather Service and the Corps offices will be in sync. Thanks.

[REDACTED]

[REDACTED]  
[REDACTED] Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
402 [REDACTED]  
402 [REDACTED] (fax)

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 15, 2011 10:24 AM  
**To:** Blechinger, Erik T NWO  
**Cc:** Farhat, Jody S NWD02  
**Subject:** St. Louis District Press Conference Tomorrow Regarding Missouri River (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Erik,

FYI. I heard from a colleague at the National Weather Service that St. Louis District was planning a press conference tomorrow morning. The areas highlighted in yellow indicate verbiage that is not quite in line with what we're telling folks through the NWO, NWK and MRBWM websites.

[REDACTED]  
[REDACTED]  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
402 [REDACTED]  
402 [REDACTED] (fax)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

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From: Farhat, Jody S NWD02  
Sent: Wednesday, June 15, 2011 6:14 PM  
To: [REDACTED] NWK; [REDACTED] NWD02  
Cc: [REDACTED] NWK; [REDACTED] NWK  
Subject: RE: Lower Kansas River Lake Releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks for your report [REDACTED]. I fully support your planned operation to reduce releases to stay below the lower end of the stage ranges provided.

Thanks,  
Jody

-----Original Message-----

From: [REDACTED] NWK  
Sent: Wednesday, June 15, 2011 5:07 PM  
To: [REDACTED] NWK; [REDACTED] NWD02; Farhat, Jody S NWD02  
Cc: [REDACTED] NWK; [REDACTED] NWK  
Subject: RE: Lower Kansas River Lake Releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

15 June 2011

No changes in Kansas River lake releases from yesterday. However, we continue to closely monitor our downstream gages at Kansas City and Waverly. We are tracking the Waverly gage specifically, as the NWS forecast is projecting stages near the 27 ft stage (the publicly released lower flow scenario with a Gavins release of 150,000 cfs). We do not want the Kansas River releases to contribute to stages above the lower flow scenario. The current NWS projections show 26.7 feet on June 20-21. We are coordinating closely with MRBWM and their forecast is slightly lower at 26.3 on June 20 (197 kcfs). We will re-evaluate tomorrow morning as the NWS forecast may change. I know that the public is tracking the releases and the NWS forecasts, based on calls I have received in the past two days. Levee overtopping forecasts show that the lowest levees in that area begin overtopping between 29.5 and 30 at the Waverly gage.

14 June 2011

Since the Kansas River lakes' flood pool evacuation releases are something we are monitoring closely and coordinating with the MRBWM, we felt it appropriate to track the status in a daily email.

No changes in Kansas River lake releases from yesterday (see below).

[REDACTED]  
[REDACTED] Water Management Section  
USACE - Kansas City District  
[REDACTED]

-----Original Message-----

From: [REDACTED] NWK

Sent: Monday, June 13, 2011 2:05 PM

To: Hofmann, Anthony J COL NWK; [REDACTED] NWK; Farhat, Jody S NWD02

Cc: [REDACTED] NWD02; [REDACTED] NWK; [REDACTED] NWK

Subject: RE: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

We have resumed flood pool evacuation releases from the Kansas River Lakes based on the delayed arrival of the peak Gavins Point releases, as discussed below and in a conversation this morning with Kevin Grode. Milford is now releasing 9,000 cfs and projected to reach multipurpose pool in 14 days. We are limiting releases to 9,000 cfs to reduce the risk of outlet channel damage. Tuttle Creek is now releasing 8,000 cfs and projected to reach multipurpose pool in 10 days. Perry is releasing 5,000 cfs and projected to reach multipurpose pool in 7 days. Clinton is near multipurpose at this time and will remain at a low flow release of 21 cfs.

We will continue these operations in close coordination with the MRBWM - Reservoir Control Center. We are also closely monitoring the upstream gages to track the progression of the Gavins Point release peak flows.

[REDACTED]  
[REDACTED] Water Management Section  
USACE - Kansas City District  
[REDACTED]

-----Original Message-----

From: [REDACTED] NWK

Sent: Monday, June 13, 2011 9:14 AM

To: Farhat, Jody S NWD02; Hofmann, Anthony J COL NWK; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWK; McMahon, John R BG NWD; Anderson, G Witt NWD; Blechinger, Erik T NWO; Tipton, Robert A Col NWD; [REDACTED] NWD

Cc: [REDACTED] NWD02; [REDACTED] A NWD02; [REDACTED] NWK; [REDACTED] D NWK

Subject: RE: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Jody, based on our conversation this morning we now understand that increased MR flow travel times to Rulo and south will be delayed due to overtopping of embankments north of Omaha. I will have Eric S. and Ed coordinate with Kevin the expected travel times to determine how much additional time we have to draw down Milford - we will resume releases today. Please let us know of any changes to MR travel times so we have time to adjust on the Kansas.

Appreciate all the good work you are doing!

Thanks, r

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Sunday, June 12, 2011 5:51 PM

To: Hofmann, Anthony J COL NWK; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWK; McMahon, John R BG NWD; Anderson, G Witt NWD; Blechinger, Erik T NWO; Tipton, Robert A Col NWD; [REDACTED] NWD

Cc: Farhat, Jody S NWD02; [REDACTED] NWD02; [REDACTED] NWD02

Subject: FW: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

COL Hofmann,

Sir, in response to an issue raised on the NWK MCT call this afternoon, I offer the following information:

My office has been coordinating with the NWK Water Management office regarding evacuation of the tributary reservoirs prior to peak stages reaching the Kansas City area. On May 29th we received the attached deviation request, which was approved via email almost immediately and followed by a formal letter on May 31. When we learned last weekend that the district was cutting back releases from Milford and other tributary reservoirs in response to the increasing flows on the Missouri River, Kevin Grode sent the email below to Eric Shumate suggesting that the District continue to evacuate storage until the stages at Kansas City and/or Waverly reach the lower end of the published stage range with 150,000 cfs release from Gavins. Apparently this was discussed within NWK and the decision was made to reduce outflows to minimum release requirements.

It is still my position that the tributary reservoirs should be evacuated prior to peak stages being reached in the reach below Kansas City. Personally, I believe that the 29 May deviation request was sufficient to allow continued evacuation, but if the district would like to request a more specific deviation request, I would certainly approve it immediately.

The daily bulletin indicates 200,000 acre-feet of water remains to be evacuated from Milford. Based on discussions with Hydrologic Engineering in the Omaha District, they expect it will take a week or more for all the overbank storage between Gavins Point and Omaha to fill. Extend that philosophy to the reach from Omaha to Kansas City, and it appears there are several weeks remaining before peak stages from the 150,000 cfs release reach Kansas City.

I strongly encourage Kansas City District to resume evacuation of all tributary storage unless local conditions dictate another strategy.

VR,  
Jody

-----Original Message-----

From: [REDACTED] WDW02  
Sent: Sunday, June 12, 2011 4:12 PM  
To: Farhat, Jody S WDW02  
Subject: FW: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Jody,

The attached is the deviation we approved. Below is what I sent to Eric last Sunday. When I spoke with him last Monday he had indicated that he had spoken with Rex Goodnight and that they had decided to stick with their original plan.

- [REDACTED]

[REDACTED]  
[REDACTED]

Missouri River Basin Water Management,  
Northwestern Division, USACE

402 [REDACTED]  
402. [REDACTED] (fax)

-----Original Message-----

From: [REDACTED] NWD02

Sent: Sunday, June 05, 2011 6:00 PM

To: [REDACTED] NWK

Subject: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

Just throwing some words out here for you to consider.

Reference attached deviation request from May 29, 2011 - Deviation Request from Missouri River Control Points).

The extreme and historical releases being made from Gavins Point are directly related to the reservoir conditions at the upper mainstem projects. All three upper projects are currently well into their exclusive flood control pools and are expected to remain in those zones, at least until August, and perhaps later. Currently, Fort Peck is in its surcharge zone and Garrison is within inches of being in its surcharge zone.

Given the extreme flooding conditions in the mainstem system, it is necessary that tributary reservoir regulation also be considered in order to maintain proper risk management. Attached is a planning tool, which outlines a likely range of flows of stages with a Gavins Point release of 150 kcfs, that was collaboratively developed by MRBWM, NWO, NWK and the MBRFC (National Weather Service). This planning tool is being used to assist with risk reduction measures along the Missouri River from Gavins Point to the mouth.

<http://www.nwo.usace.army.mil/html/op-e/maps/WaterMgt/Below%20Gavins%20-%20Range%20of%20Flows%20and%20Stages%20-%20Final.pdf>

Kansas City - 220 kcfs to 350 kcfs (30 ft to 39 ft) Waverly - 230 kcfs to 370 kcfs (27 ft to 31 ft) Boonville - 260 kcfs to 420 kcfs (27 ft to 33 ft) Hermann - 300 kcfs to 470 kcfs (27 ft to 33 ft)

Then reference the Corps' FUI stage forecast for the next 2 weeks:

<http://www.nwd-mr.usace.army.mil/rcc/reports/internal/showrep.cgi?3STAG1>

Since the NWS forecast only goes out 5 days, it isn't going to assist with this due to travel time from the projects to each of the Missouri River stations. We could use our FUI forecast or the NWS does produce a monthly forecast every Wednesday. Might be able to get them to produce it Monday and Friday also.

For the next 2 weeks the Missouri River stations, per this morning's FUI:

- ... Kansas City (MKCF) stage forecast does not exceed 28 feet.
- ... Waverly (WVMF) stage forecast does not exceed 26 feet.
- ... Boonville (BNMF) stage forecast does not exceed 24 feet.
- ... Hermann (HEMF) stage forecast does not exceed 23.5 feet.

Since all stations are below their respective lower end of the likely range, then releases from flood control storage zones can be made in such a manner that the total flood control release does not exceed the lower stage level. In this case, it would be Waverly (26 feet to 27 feet) that would be the adjusted control point. Per the latest rating curve, there's about an 18 kcfs difference between 26 and 27 feet at Waverly. Or we could use flows.

Doesn't matter - 6 of one, half dozen of the other. However, it seems that the stage is driving factor, not the flow.

How flood control storage releases are made should be based on each project's current level of flood control storage as well as downstream constraints, such as Milford and Tuttle Creek. However, 3 weeks from now, it may be a different project. We'll have to work out how we're going to monitor/adjust through the period ... revisit every few days or after a major precipitation event ... it'll be tricky due to the travel time.

Talk to you at 8:30.

[REDACTED]  
[REDACTED]  
[REDACTED]  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
402. [REDACTED]  
402. [REDACTED] (fax)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 6:18 PM  
**To:** [REDACTED] NWD02  
**Cc:** [REDACTED] NWD02  
**Subject:** Historic Snow plots (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Ann, could you make a copy of the snowpack graphic (the plots like you do now showing average and actual) from the past 15 years of summary reports for me? We got a request from the SD congressional representative. The sooner the better. I have copies of all the reports in the upper cupboard behind my desk if you don't have copies of them all.

Thanks,  
Jody

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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From: Farhat, Jody S NWD02  
Sent: Wednesday, June 15, 2011 6:42 PM  
To: [REDACTED] NWO  
Subject: RE: Noem request (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I have no idea, that was just my best guess.

-----Original Message-----

From: [REDACTED] NWO  
Sent: Wednesday, June 15, 2011 3:55 PM  
To: Farhat, Jody S NWD02  
Subject: RE: Noem request (UNCLASSIFIED)

Do you think that is what she means by "flood alert"? Haven't really heard that before.

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Wednesday, June 15, 2011 3:54 PM  
To: [REDACTED] NWO  
Subject: RE: Noem request (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We've been operating for flood damage reduction since last summer. Kim can tell you when the EOC was activated.

-----Original Message-----

From: Eckert Uptmor, Kayla A NWO  
Sent: Wednesday, June 15, 2011 3:33 PM  
To: Farhat, Jody S NWD02; Thomas, Kimberly S NWO  
Subject: Noem request

Jody/Kim: Congresswoman Noem has a constituent that stated that the Corps put themselves on flood alert on 1 March. This is NOT true, correct?

[REDACTED]  
[REDACTED]  
[REDACTED] Liaison  
US Army Corps of Engineers  
Omaha District  
1616 Capitol Avenue  
Omaha, NE 68102-4901  
402 [REDACTED] (o)  
402 [REDACTED] (c)

Classification: UNCLASSIFIED

~~REDACTED~~ NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 6:41 PM  
**To:** Gross, Sarah LRC  
**Subject:** RE: Molly Montag (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sarah,

I told her that the reservoir forecast considers some additional rain and the snow melt, but that if we got very heavy rain over the upper basin the numbers could go higher.

As for Gavins Point, I said the pool is at 1207.4 today and the top of gates is 1210 ft, giving us about 2.6 feet of freeboard today. Gavins is so small we don't use the flood storage there except to capture runoff from local events. We expect the reservoir to drop about a foot over the coming days.

Jody

-----Original Message-----

**From:** Gross, Sarah LRC  
**Sent:** Wednesday, June 15, 2011 3:59 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Molly Montag (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, FSA, can you please give what your responses were. Thank you.

-----Original Message-----

**From:** Quinn, Kevin R NWO  
**Sent:** Wednesday, June 15, 2011 3:57 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** DLL-NWK-MRJIC  
**Subject:** RE: Molly Montag (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thank you Jody. Loop closed

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 3:56 PM  
**To:** Quinn, Kevin R NWO  
**Subject:** RE: Molly Montag (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE



I called her back and left a message answering her questions. I've got meetings at 4:00 and 4:30, so I doubt I'll have time to talk to be again before the 5:00 stakeholders call, but I could try if she still needs more info.

Jody

-----Original Message-----

From: Quinn, Kevin R NWO  
Sent: Wednesday, June 15, 2011 3:35 PM  
To: MRJIC; Farhat, Jody S NWD02  
Subject: Molly Montag (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Reporter Molly Montag (712-293-4228) of Sioux City Journal has been trying to get a response from MRJIC and hasn't been called back

She wants to talk to Jody Farhat about comments made last night re: specifically, what might drive the Corps to go higher than 150,000 cfs at Gavins Point. She also wants to know how much freeboard there is at Gavins Point--how close is the water to overtopping the dam?

Thanks

kq

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 8:37 PM  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD  
**Subject:** Snowpack graphic (UNCLASSIFIED)  
**Attachments:** snow.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

Attached is the latest mountain snowpack graphic. Would you like us to send it to you each time it's updated?

VR,  
Jody

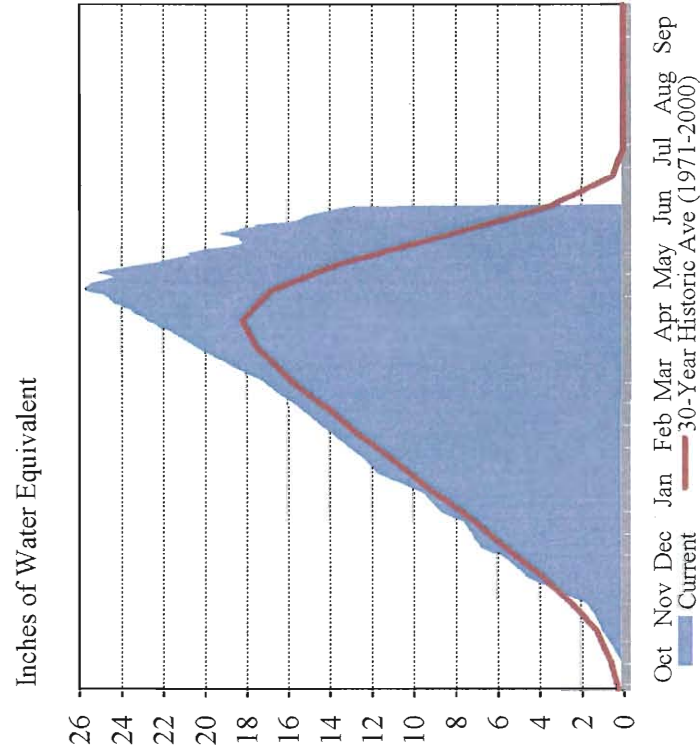
Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
Office: 402-996-3840  
Cell: 402-350-1417  
Home: 402-551-6013

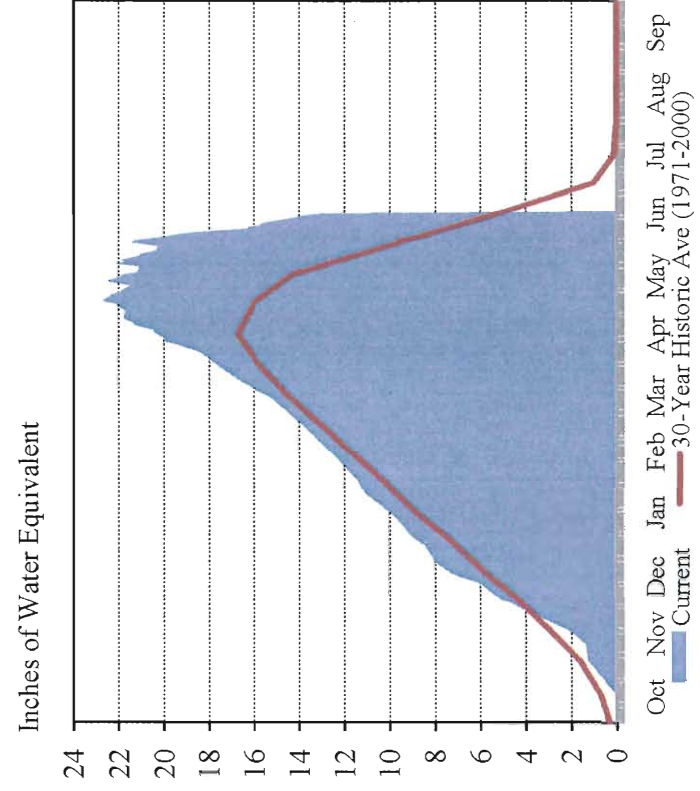
Classification: UNCLASSIFIED  
Caveats: NONE

# Missouri River Basin Mountain Snowpack Water Content 2010-2011

**Total above Fort Peck**



**Total Fort Peck to Garrison**



The Missouri River Basin mountain snowpack normally peaks near April 15. The mountain snowpack in both the "Total above Fort Peck" and the "Total Fort Peck to Garrison" reaches appears to have peaked on May 2 at 141 percent and 136 percent of the normal April 15 peak, respectively. The current mountain snowpack, as of June 15, is 70 percent and 78 percent of the normal April 15 peak in the "Total above Fort Peck" and the "Total Fort Peck to Garrison" reaches, respectively.

[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 4:23 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** FW: Missouri river below Dam Measurement (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

-----Original Message-----

**From:** Paul L Provencher [<mailto:pprovenc@usgs.gov>]  
**Sent:** Wednesday, June 15, 2011 2:58 PM  
**To:** Melvin K White  
**Cc:** Timothy J Morgan; Wayne R Berkas; [REDACTED]  
**Subject:** Missouri river below Dam Measurement

Mel,

Measurement was made at Station # 06175100 due to difficulty finding a good boat launch and this site by far was the best for launching the boat and for channel being wide open for measurement.

Missouri R at W Frazer Pump Plant nr Frazer MT

Start time 1201  
End time 1227

Q= 92,400 cfs

Rated fair

Paul L Provencher  
Field Office Chief  
USGS Montana Water Science Center - Fort Peck P.O. Box 124 Fort Peck, MT 59223  
(406) 526-3532  
[pprovenc@usgs.gov](mailto:pprovenc@usgs.gov)

Classification: UNCLASSIFIED  
Caveats: NONE

10/10/1919

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10/10/1919

402.996.3870

402.996.3898 (fax)

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

## **Press Conference: Missouri River Flooding 2011 – St. Louis**

### **Purpose**

Convey to the public the potential for flooding along the Missouri River and how levees in the St. Louis area are expected to perform.

### **Objective**

Establish a better understanding in the media and public of the actual impacts of upstream releases on the St. Louis area.

### **Format**

The format will be a press conference, followed by Q&A. A short availability for stand-up interviews will take place immediately following. PAO will escort media to and from the conference.

The conference will be held in the Emergency Operations Center on the 4<sup>th</sup> Floor of the RAY Building at 0930. Participants are asked to arrive no later than 0845 for pre-brief and dry run. USACE will have SMEs from, Emergency Management, Levee Safety and Water Control available.

<b>0930-0935</b>	PAO will convene, give brief background, info on graphics, and introduce Subject Matter Experts
<b>0935-0945</b>	National Weather Service (Wes Browning, meteorologist) will brief the long-range forecast for river stages (range of average and high precip.) at Herman, St. Charles and St. Louis gages.
<b>0945-0955</b>	USACE St. Louis (Col. O'Hara) will brief the possible impacts of the two scenarios on levees in the St. Louis district, as well as residual risk and USACE readiness.
<b>0950-1000</b>	Q&A
<b>1000-1015</b>	Convene press conference and allow for stand-ups

### **Key Messages**

Current conditions indicate only minor flooding is expected in the St. Louis area. However, there is potential for higher water if significant rain falls in the watershed.

Based on our inspections, the Corps of Engineers expects the levees in our area to perform as designed. However, communities need to be aware there is always risk inherent with flooding. This flood event is expected to last well into August.

St. Louis District is working with the National Weather Service, other Corps districts upstream, levee owners, emergency management agencies and other federal, state and local authorities to minimize the risk of flooding in our area.

## **Talking Points**

### **Forecasts - NWS**

Forecasts include releases from upstream dams, and account for a range of scenarios based on average rainfall in the watershed and significant rainfall.

Average rainfall in these forecasts is based on the last four years of precipitation in the area, which trend higher than historical averages.

Significant rainfall can be described as XXX Inches of rain over a period of XX hours/days.

The average rainfall scenario would result in a river stage of **27** at Herman, **28** at St. Charles and **XX** at St. Louis.

The high rainfall scenario would result in river stages of up to **33** at Herman, **37** at St. Charles and **XX** at St. Louis.

Current precipitation forecasts for the next 28 days show...

### **Average Rainfall scenario - USACE**

Releases from upstream dams have been increased gradually, so some of that water is already here. We should see the full impact of the maximum release by the end of June.

Based on current forecasts and conditions, the Corps of Engineers expects only minor flooding in our area. St Louis District's are of responsibility on the Missouri River starts near Washington, Missouri.

With the full release of water from Gavins Point Dam and an average amount of additional rainfall in the watershed, St. Louis District levees are at no risk of overtopping and are expected to perform as designed.

The projections we've developed with the National Weather Service and our engineers show that our Missouri and Mississippi River levees will be able to withstand this amount of water without any serious problems. Below average rainfall can lessen these predictions, as well.

### **Significant Rainfall Scenario - USACE**

With significant additional rainfall, there is a possibility for a more serious flood event. With higher river stages, some levees in our area could be overtopped, and all would be under significant stress.

If river stages reach the high end of our forecasts, the following levees would be at risk of overtopping:

Public safety is our top priority. We are prepared in the event conditions change. We have already been in contact with levee districts and emergency managers, and the Corps will be ready to provide assistance in a flood fight.



### **Levee information - USACE**

Levees upstream of Washington Missouri fall under our Kansas City District. We have contacts on our website for information on levees outside St. Louis District.

The flooding is not expected to impact the Mississippi River stage enough to cause water to flow into the breached opening of the Bird's Point/New Madrid Floodway in Missouri.

We will continue to provide updated information as it becomes available so that emergency managers, local and state officials, residents and businesses can make informed decisions.

The St. Louis District 2011 Flood Fight page will provide our maps, information and links to our partner agencies like NWS and other Corps Districts. Maps and graphics showing inundation, levee status and river forecasts are provided for planning and informational.

### **Missouri River dams and conditions - USACE**

The dams upstream on the Missouri River are structurally sound, fully functional and operating as designed.

On January 28, 2011, the full flood capacity of the Missouri River reservoir system was available. Until the beginning of May, there was no reason for releases beyond normal levels. A delayed melt and significant extra rain filled the system.

Gavins Point Dam is releasing its maximum amount of water (150,000 cubic feet per second) as of Tuesday, June 14. It takes approximately 10 days for those releases hit the St. Louis District area.

### **Background Info**

Dams upstream on the Missouri River were operated for flood control early in the season, holding back water that would have further impacted downstream flooding. In accordance with the Missouri River Master Manual, spillway gates have been opened at Fort Peck, Garrison, Big Bend, Fort Randall, and Gavins Point, to make required releases. Peak releases are expected to last until at least August.

Gavins Point Dam is releasing 150,000 cfs as of Tuesday, June 14. It takes approximately 10 days for those releases hit the St. Louis District area.

Below average rainfall could mean lower stages, however, if we should receive any significant rains on top of those releases, we could see gage readings of up to 33' at Hermann, 32' at Washington, and 37' at St. Charles.

GAGE	FS	Minimum*	Phase I	Phase II	Maximum**
Hermann	21	27	23	26	33
Washington	20	23	22	25	32
St. Charles	25	28	26	30	37

\*Minimum-expected stage with max releases from Gavins Pt. and avg. rainfall

\*\*Maximum-expected stage with significant rainfall

## Q&A

Q- What is considered significant rainfall? What is average?

A -

Q- If there are levees overtopping upstream, what does that mean for St. Louis?

A- Levee breaches upstream should not have a substantial impact on the amount of water coming downstream.

Q – What happens if we have a levee breach in our area?

A – Corps flood fight teams are prepared to respond in the event any of our levees are at risk of failure. As water levels rise, so does the amount of monitoring and vigilance by the Corps, emergency managers and levee districts.

Q – How do you know these levees will hold up?

A - The Corps of Engineers, along with federal, state, local and private partners, is responsible for assessing the condition of levees and flood risk and communicating their findings so individuals can make well informed safety decisions and take appropriate action. The levees on the Missouri have been inspected and are expected to perform as designed.

Q- What does minimally acceptable mean?

A – A Minimally Acceptable rating means areas of concern have been identified and need to be addressed, but do not compromise the levee system. Looking at the current projections, the systems rated minimally acceptable should be able to withstand this flood. However, areas where issues were found will be monitored closely.

Q - Why are the dams releasing water if it means areas will flood?

A - The need for high releases is due to a few factors: 1) plains snow; 2) extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in one month (300% of normal in May); and 3) additional mountain snowpack accumulation to record levels in May and a delayed melt.

Q - If the water gets high, will the Corps issue evacuation.

A - The Corps of Engineers will not issue evacuation orders. People should listen to their county emergency management agencies. We provide the best information available so that emergency managers, local and state officials, residents and businesses can make informed decisions.

Q - Why didn't you release more water earlier in the year?

A: At no time prior to the repeated rounds of heavy rain in the Upper Basin in May, resulting in record single-month inflows into our System, did we have reason to expect record releases. Immediately after this rainfall event we began incrementally stepping up our releases in a controlled manner, while still allowing people downstream to prepare for a record runoff water year.

Q - How long will you continue at the projected 150,000 cfs release rate?

A - These peak releases will likely extend well into August. We need to maintain these high releases until the reservoirs are back down to a manageable level. The other guiding principle is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies both to our mainstem dams and all the levees downstream.

Q- If we have a high water event, will you blow up a levee?

A - No. The levees breached at Bird's Point/New Madrid, Missouri, are part of a floodway, which is a component of a larger flood control system on the lower Mississippi River. There is no overall flood control system or floodways on the Missouri.

#### POCs

##### USACE Public Affairs

Mike Petersen	314-331-8002	bb: 314-452-7325
Mary Markos	314-331-8095	
Romanda Walker	314-331-8090	

NWS	[REDACTED]	[REDACTED]	cell: [REDACTED]
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MVS EOC (flood fight, mapping info, prep)-	[REDACTED]	[REDACTED]
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MVS Water Control (water levels, reservoir ops, forecasts)	[REDACTED]	[REDACTED]
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MVS Geotech/Levee Safety	[REDACTED]	[REDACTED]
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[REDACTED] NWO

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From: [REDACTED]  
Sent: Wednesday, June 15, 2011 3:55 PM  
To: Farhat, Jody S NWD02  
Subject: RE: Noem request (UNCLASSIFIED)

Do you think that is what she means by "flood alert"? Haven't really heard that before.

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Wednesday, June 15, 2011 3:54 PM  
To: [REDACTED]  
Subject: RE: Noem request (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We've been operating for flood damage reduction since last summer. Kim can tell you when the EOC was activated.

-----Original Message-----

From: [REDACTED]  
Sent: Wednesday, June 15, 2011 3:33 PM  
To: Farhat, Jody S NWD02; [REDACTED] NWO  
Subject: Noem request

Jody/Kim: Congresswoman Noem has a constituent that stated that the Corps put themselves on flood alert on 1 March. This is NOT true, correct?

[REDACTED]  
Chief of Planning  
Congressional Liaison  
US Army Corps of Engineers  
Omaha District  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 3:33 PM  
**To:** Farhat, Jody S NWD02; Thomas, Kimberly S NWO  
**Subject:** Noem request

Jody/Kim: Congresswoman Noem has a constituent that stated that the Corps put themselves on flood alert on 1 March. This is NOT true, correct?

[REDACTED]  
[REDACTED] Chief of Planning  
[REDACTED] Congressional Liaison  
[REDACTED] US Army Corps of Engineers  
[REDACTED] Omaha District  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**NWO**

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**From:** MRJIC  
**Sent:** Wednesday, June 15, 2011 3:32 PM  
**Subject:** Missouri River Joint Information Center 5 p.m. Call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Reminder: The daily call will occur at 1700hrs/CT. Call in information is as follows:

87-1000-

#

This call is intended for Congressional Delegation, Tribes, State Government, Local Government, and Press. Please do not distribute the number to the general public, the JIC is set up with email and call in accessibility to answer questions for the general public.

General format includes updates from the Hydrometeorological Center (HPC), Iowa Department of Transportation, Missouri Department of Transportation, Nebraska Department of Transportation, the Missouri River Basin Water Management Division, USACE Omaha District Emergency Operations Center, USACE Kansas City District Emergency Operations, followed by a Questions and Answer opportunity.

Thank you.

The Missouri River Joint Information Center (MRJIC)

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** Chris Bjorke [Chris.Bjorke@bismarcktribune.com]  
**Sent:** Wednesday, June 15, 2011 3:28 PM  
**To:** Farhat, Jody S NWD02; [REDACTED]  
**Subject:** RE: Need Verification: Article about corps river control (UNCLASSIFIED)

Another thing: This site is reporting that the corps is "building up" the spillway gates. The gates are simply being raised, correct?

"Last night the US Army Corps of Engineers announced that it was building up the Garrison Dam's 28 spillway gates by 1 foot, from an elevation level of 1854 to 1855 feet above sea level, to increase its reservoir's storage capacity level. The higher surcharge will result in the ability to store an additional 380,000 acre feet of water, as the rains and snow melt continue to build in the upper Missouri River."

<http://plainsdaily.com/entry/army-corps-builds-up-garrison-to-add-extra-foot-of-freeboard/>

-----Original Message-----

**From:** Farhat, Jody S NWD02 [mailto:Jody.S.Farhat@usace.army.mil]  
**Sent:** Wednesday, June 15, 2011 2:15 PM  
**To:** Chris Bjorke  
**Cc:** [REDACTED]  
**Subject:** RE: Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Chris - thanks for checking the accuracy of the statement below.

The statement below is factually incorrect! The Corps is maintaining full control of the releases from Fort Peck Dam. The powerplant at Fort Peck has very little discharge capacity, about 15,000 cfs, so anytime we need to release more than 15,000 cfs we utilize the spillway. An additional added benefit of utilizing the spillway is that when the spillway gates are raised uniformly, the reservoirs can gain additional storage. For example, at the Fort Peck Dam, raising the 16 spillway gates 2 feet, allows the top reservoir elevation to increase from an elevation of 2250 to 2252. The two feet of elevation increases the reservoir storage capacity by 494,000 acre feet. The engineering term for this additional storage is surcharge. Use of the spillway does not in any way impact the structural integrity of the dam.

Regards,  
Jody

-----Original Message-----

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 1:53 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Hello, Jody, Chris Bjroke with the Bismarck Tribune would like a verification to the below article items.

Also, he wants to know the max elevation of the reservoirs and to clarify how the forecast elevations at Garrison Dam and Fort Peck can exceed the max full elevation (based on Web information).

-----Original Message-----

From: Chris Bjorke [<mailto:Chris.Bjorke@bismarcktribune.com>]

Sent: Wednesday, June 15, 2011 12:05 PM

To: [REDACTED]

Subject: Article about corps river control

Hello [REDACTED]. I can't give you full article until tomorrow, unfortunately, but here is the part I want to verify.

"As of June 14, 2011, Fort Peck reservoir was at 114.2 percent of capacity. The lake is so full that water is now flowing through the dam's emergency spillway.

Because the Army does not have the ability to halt the flows through the spillway without threatening the structural integrity of the dam, the dam and reservoir have lost the ability to curtail the Missouri."

Here is the author's information:

Robert Kelley Schneiders, Ph.D., is an environmental historian with Eco InTheKnow, LLC, P.O. Box 4393, Boulder, CO 80306, [ww.ecointheknow.com](http://www.ecointheknow.com).

Here is my contact info, thanks.

Christopher Bjorke  
Business reporter  
The Bismarck Tribune  
701-250-8261

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

From: [REDACTED]  
Sent: Wednesday, June 15, 2011 2:37 PM  
To: Farhat, Jody S NWD02  
Cc: [REDACTED]  
Subject: RE: Call from Bjorke with Bismarck Tribune (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks Ma'am. I am sending him the MRJIC CODEL call info.

[REDACTED]  
[REDACTED]  
-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Wednesday, June 15, 2011 2:33 PM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Call from Bjorke with Bismarck Tribune (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I just responded directly to Mr. Bjorke (see attached email) regarding a request that came into the JIC on this same subject. Please tell him to call me directly if he needs further clarification. The information in the opinion piece is totally incorrect and will create havoc.

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[REDACTED]  
Office: [REDACTED]  
Cell: [REDACTED]

-----Original Message-----

From: [REDACTED]  
Sent: Wednesday, June 15, 2011 2:27 PM  
To: Jody Farhat, P.E. NWD02  
Cc: [REDACTED]  
Subject: Call from Bjorke with Bismarck Tribune (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]/Jody:

Had a call this afternoon from Christopher Bjorke with the Bismarck Tribune who wanted me to comment on an opinion piece from an environmental historian concerning the structural integrity of the Fort Peck Dam that will appear in tomorrow's edition. Chris refused to send me the piece in its entirety so I refused to comment on it.

He also asked about the three week forecast of inflows to Peck and Garrison in the fact there is more coming in than the structures will hold. I explained what COL Ruck talked on the CODEL call yesterday about surcharge pools and he was happy with that. Questions are: Does Fort Peck have the same capability with raising the gates will allow that number of additional feet of storage capability? How or what does allowing that additional surcharge storage do to the cfs being discharged?

Thanks.

[REDACTED]  
[REDACTED]  
Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 2:04 PM  
**To:** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
**Cc:** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
**Subject:** Missouri River Basin Water Management Division Situation Report of 6-15-11 (UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-15-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Today's NWD Water Management situation report is attached.

[REDACTED]

Missouri Basin Water Management Division  
Northwestern Division  
Corps of Engineers  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

## Missouri River Basin Water Management Situation Report – 6-15-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Relatively high inflows continue to occur into Fort Peck Reservoir and have increased into Garrison Reservoir from primarily rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/15/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	79.0	65.8	2250	2252.2	0.1
Garrison	180.0	140.1	1854	4853.7	0.3
Oahe	156.0	150.2	1620	1618.6	0.1
Big Bend	148.0	151.5	1423	1419.7	-0.2
Fort Randall	162.0	142.1	1375	1363.5	0.4
Gavins Point	149.0	148.4	1210	1207.4	0.1

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. An issue surfaced yesterday that required the spillway at Fort Randall to be shut and the flood control tunnels to be used until some repairs can be completed sometime today.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/15/11)**

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	19,010	18,463	-547	971	-56
Garrison	23,650	23,821	171	1,489	11
Oahe	22,590	23,137	547	1,102	50
Big Bend	1,606	1,798	192	60	100
Fort Randall	4,292	5,418	1,126	985	100
Gavins Point	377	450	73	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the release from Fort Peck has been increased to 65 kcfs today and will be held at that level for some of the next week before it is returned to 60 kcfs. Other than that, the releases 1 week out will be at the currently anticipated maximum releases at the other five reservoirs, with Gavins Point joining Oahe and Big Bend at 150 kcfs today. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/15/11)**

Reservoir	Yesterday kcfs	Forecast Today kcfs	7 days out 20 June kcfs	14 days out 27 June kcfs	Pre-2011 Record kcfs
Fort Peck	65.8	65	60	60	35
Garrison	140.1	140	150	150	65
Oahe	150.2	150	150	150	59
Big Bend	151.5	150	150	150	74
Fort Randall	142.1	143	148	148	67
Gavins Point	148.4	150	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/15/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.4	20.6	mid-Jun
Pierre, SD	13	18.8	18.7	mid-Jun
Sioux City, IA	30	32.9	35-37	mid-Jun thru July
Decatur, NE	35	37.6	40-42	mid-Jun thru July
Omaha, NE	29	33.1	34-36	mid-Jun thru July
Nebraska City, NE	18	25.5	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.9	27-32	mid-Jun thru July
Kansas City, MO	32	25.1	30-39	mid-Jun thru July
Waverly, MO	20	23.8	27-31	mid-Jun thru July
Boonville, MO	21	21.0	27-33	mid-Jun thru July
Hermann, MO	21	21.7	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still about 3 feet below the constructed levee crests.

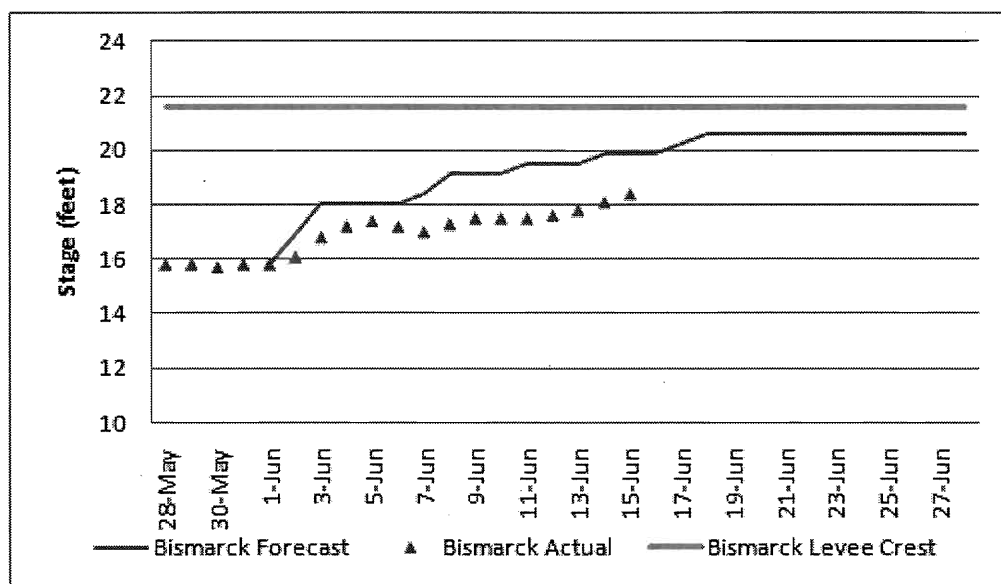


Figure 1. Missouri River stages at Bismarck, North Dakota.

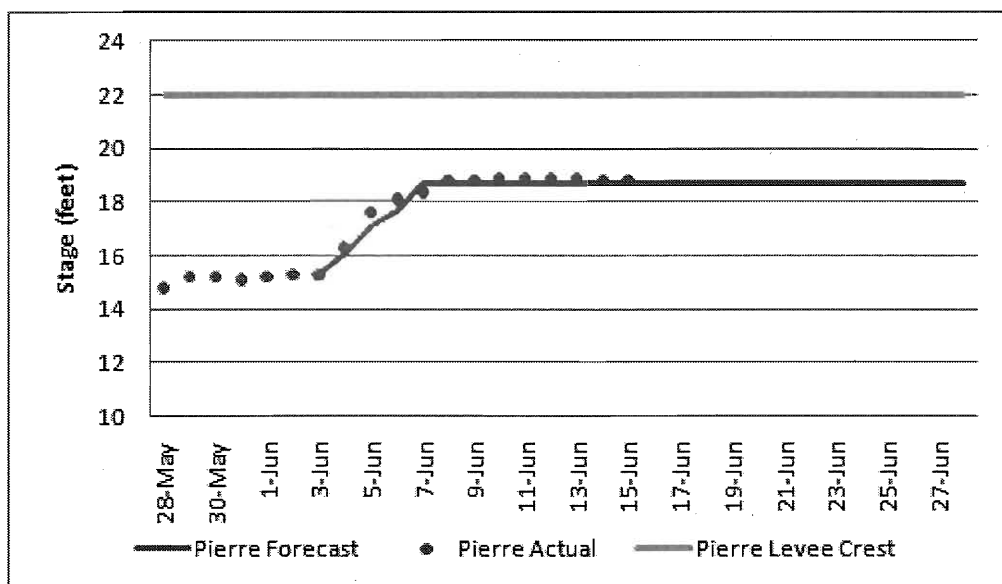


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and in a large area of the lower basin. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

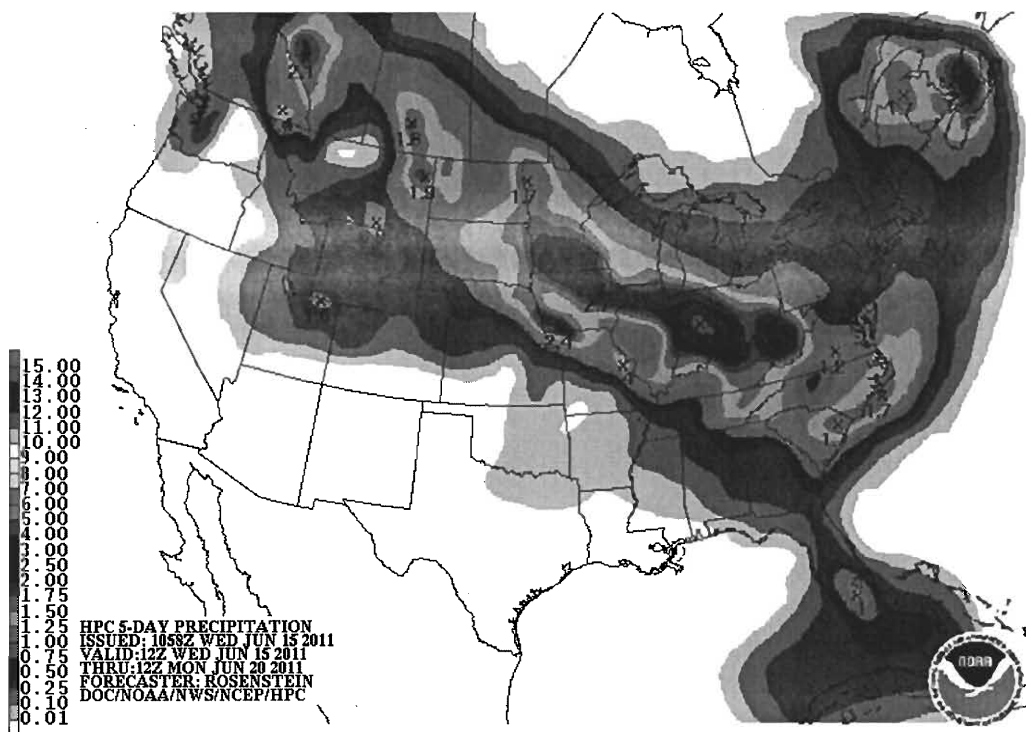


Figure 3. 5-day total QPF ending 0700 Monday, June 20, 2011.

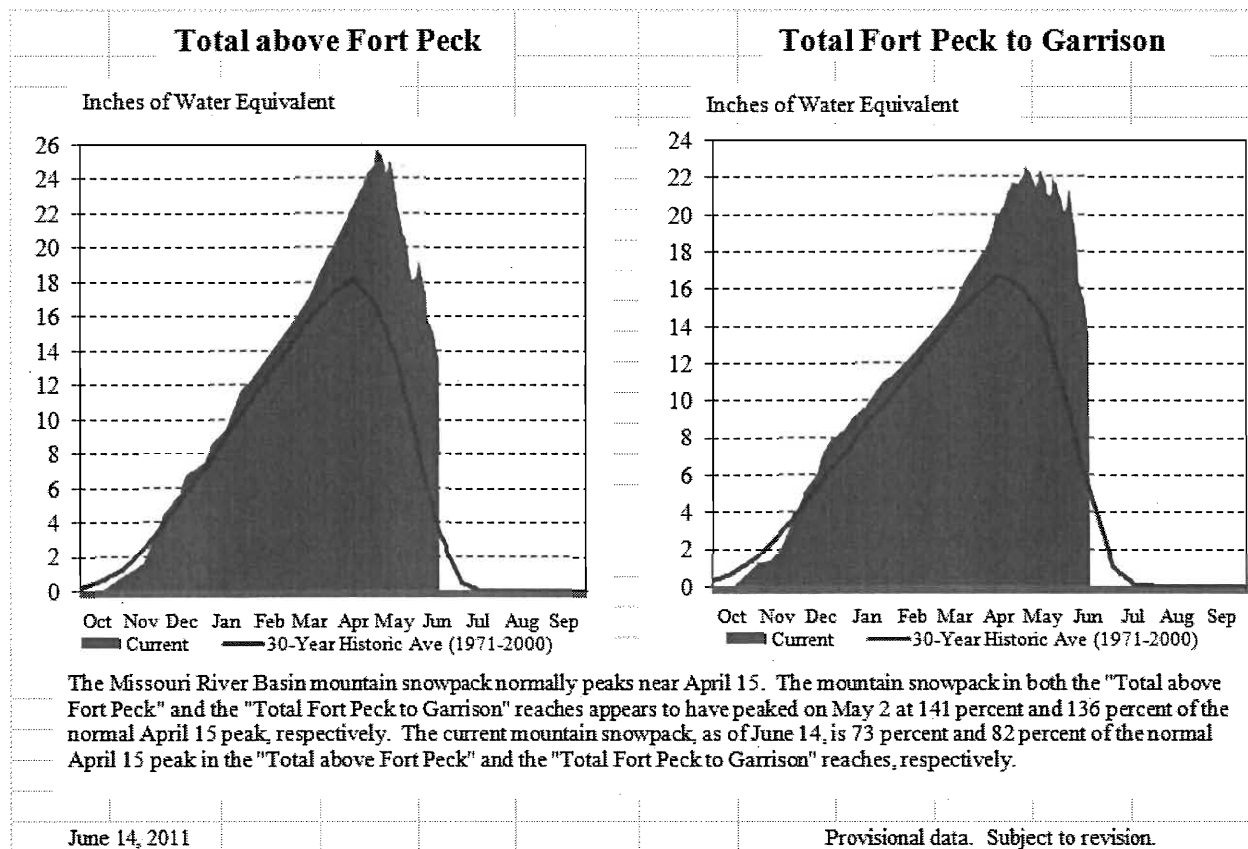


Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 14, 2011.



## Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg, Iowa. A full breach of a 10- to 15-foot section of the L-575 levee occurred June 13 as a result of the fourth slump in the past 2 weeks. The Hamburg levee is currently anticipated to be completed by Friday, June 17. A required closure structure is currently being placed. Also, this failure is expected to result in the closure of Interstate 29, making this major north-south highway closed above and below Omaha, Nebraska. The failure of this levee occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is getting very close to the 2010 maximum (still 0.24 feet below).

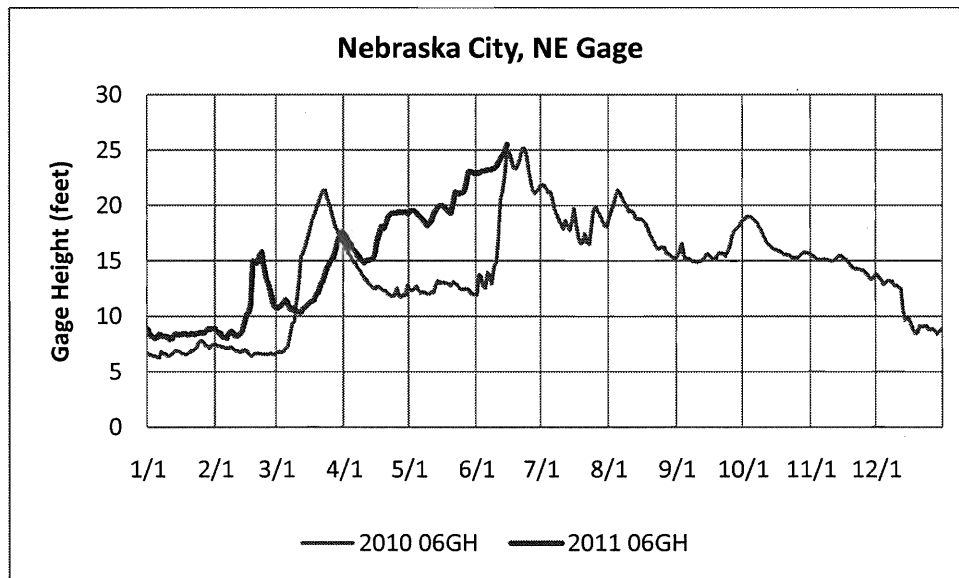


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri Monday, June 13. This location is across the river from Rulo, Nebraska. The gage plot for this location is shown below as Figure 6. Another factor, such as duration of water against the levee or back-to-back years with water against the levee appears to be playing a role in the failure of this levee as well as the levee near Hamburg.

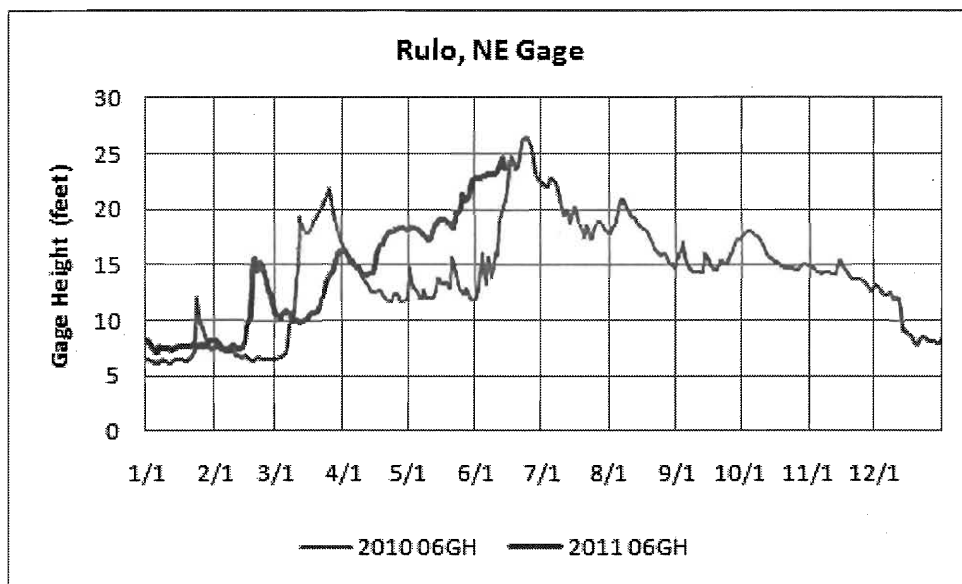
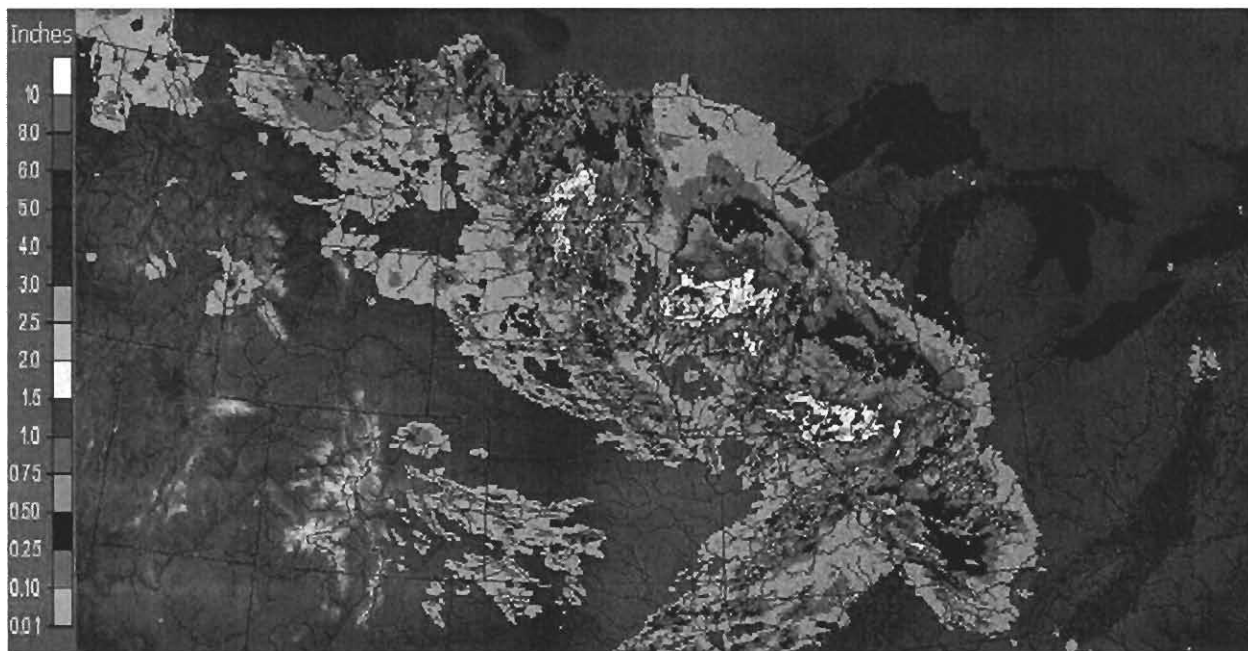


Figure 6. River stages at Rulo, Nebraska for 2010 and 2011.

Southeastern North Dakota and north central South Dakota experienced heavy rains yesterday and over night. Much of this rainfall will drain primarily into Lake Oahe and the James and Big Sioux Rivers that empty into the Missouri River downstream from Gavins Point Dam. Figure 7 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

**NWS Central Region: Current 1-Day Observed Precipitation**  
**Valid at 6/15/2011 1200 UTC- Created 6/15/11 17:41 UTC**



**NWO**

---

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 1:53 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Need Verification: Article about corps river control (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Hello, Jody, Chris Bjorke with the Bismarck Tribune would like a verification to the below article items.

Also, he wants to know the max elevation of the reservoirs and to clarify how the forecast elevations at Garrison Dam and Fort Peck can exceed the max full elevation (based on Web information).

-----Original Message-----

**From:** Chris Bjorke [<mailto:Chris.Bjorke@bismarcktribune.com>]  
**Sent:** Wednesday, June 15, 2011 12:05 PM  
**To:** [REDACTED]  
**Subject:** Article about corps river control

Hello [REDACTED] I can't give you full article until tomorrow, unfortunately, but here is the part I want to verify.

"As of June 14, 2011, Fort Peck reservoir was at 114.2 percent of capacity. The lake is so full that water is now flowing through the dam's emergency spillway.

Because the Army does not have the ability to halt the flows through the spillway without threatening the structural integrity of the dam, the dam and reservoir have lost the ability to curtail the Missouri."

Here is the author's information:

Robert Kelley Schneiders, Ph.D., is an environmental historian with Eco InTheKnow, LLC, P.O. Box 4393, Boulder, CO 80306, [www.ecointheknow.com](http://www.ecointheknow.com).

Here is my contact info, thanks.

Christopher Bjorke  
Business reporter  
The Bismarck Tribune  
701-250-8261

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWD  
**Sent:** Wednesday, June 15, 2011 1:08 PM  
**To:** McMahon, John R BG NWD; Farhat, Jody S NWD02  
**Subject:** RE: Article (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Got it Sir, team is working it.

Witt

-----Original Message-----

From: McMahon, John R BG NWD  
Sent: Wednesday, June 15, 2011 11:07 AM  
To: [REDACTED] NWD; Farhat, Jody S NWD02  
Subject: Fw: Article

---

From: Grisoli, William T MG HQ02  
To: McMahon, John R BG NWD  
Cc: Ruch, Robert J COL NWO  
Sent: Wed Jun 15 10:54:28 2011  
Subject: Fw: Article

FYSA  
Sent from BB

---

From: Thimsen, Anne <Anne.Thimsen@mail.house.gov>  
To: Grisoli, William T MG HQ02  
Sent: Wed Jun 15 12:53:03 2011  
Subject: Article

Major General Grisoli,

Thank you very much for your prompt reply.

Here is the article and the link. Please let me know if you are still have problems viewing this and I will send it in another format.

Regards,

Anne

<http://www.capjournal.com/articles/2011/06/14/news/doc4df6d00c78f8c907147522.txt>

Pierre Cap Journal: Email warned of 'biblical flood'

February messages urged earlier release

By Ruth Brown

[ruth.brown@capjournal.com](mailto:ruth.brown@capjournal.com)

Published/Last Modified on Tuesday, Jun 14, 2011 - 06:05:19 am CDT

FORT PIERRE – In a series of emails sent to a Washington D.C. agency in February, Fort Pierre Public Works Director Brad Lawrence essentially predicted "a flood of biblical proportions" if the U.S. Army Corps of engineers did not start releasing water from the Oahe Dam, the Capital Journal has learned.

In a series of emails sent to Kevin Morley of the American Water Works Association, Lawrence said, "The Corps of Engineers has failed thus far to evacuate enough water from the main stem reservoirs to meet normal runoff conditions. This year's runoff will be anything but normal. This is compounded by the anticipated flooding downstream."

And in a chillingly accurate summation, Lawrence said in a Feb. 3 document, "The Corps will hold back water to help alleviate the downstream flooding, filling the reservoirs to capacity in the process. Once full, they will pass everything that comes in."

That grim prediction has become reality as the Corps has been forced to release 150,000 cubic feet per second from the reservoir, which is within several inches of the top of the spillway. The result has been millions of dollars in costs to construct levees in Fort Pierre and Pierre, the displacement of dozens of people and severe economic impact to both cities. Water has intruded into parks and neighborhoods and currently threatens millions of dollars of real estate in affluent sections of Fort Pierre.

The Capital Journal obtained Lawrence's emails pursuant to a South Dakota Freedom of Information request filed with the city of Fort Pierre. The emails (see accompanying box with excerpts of the date and content) were among several sent to Morley, security and preparedness program manager for AWWA, in February to warn of his concerns about potential flooding.

But according to the Army Corps of Engineers no one at the Omaha office, which coordinates activities on the Missouri River system, was ever forwarded those emails.

"We had no correspondence with Fort Pierre during that time that I know of," said Jody Farhat, chief of the Missouri River basin water management office for the USACE.

Even though the Corps may not have been aware of Lawrence's dire prediction, those emails were forwarded by Morley to every WARN state chair in the nation.

Lawrence, who is the South Dakota WARN chair, said although he did not send that information to the Corps, he finds it "hard to believe that it wouldn't have gotten passed on to the Corps."

"The info that Brad (Lawrence) shared was meant to let other WARNs know that (Fort Pierre was) looking at a potential flood," said Morley, describing the genesis of the correspondence.

The email trail began with Lawrence's concerns about the excessive amount of runoff and winter snow pack that would soon be melting.

"In April 2009, the inflow to the Oahe (Dam) was 140,000 cubic feet per second," he said. "That would be a flood of biblical proportions here and downstream" were the Corps forced to pass that incoming water downriver. In fact, the current release rate of 150,000 cfs is the most ever released and will continue until mid-August.

But Farhat said even if the Corps had been aware of Lawrence's concerns, its models did not predict the event he envisioned. Farhat said the Corps' studies, even as late as May 1, showed above average snow pack in that last "week or two" of April.

"We were not anticipating these historic (release) levels by any stretch of the imagination until that perfect storm and rainfall we had," said Farhat. On May 20 Farhat said there was an "incredibly large" amount of rainfall over eastern Montana.

"Flows on the Yellowstone River went to record level," said Farhat. "That runoff from rainfall filled up the storage in the reservoir that we had intended to use for the snowmelt."

Lawrence also anticipated in February that the downriver states not directly affected by all the moisture would become affected when the runoff reaches them.

But Farhat maintains that the Corps was not "unduly concerned" about water releases until the May rainfall.

"I understand the whole realm of issues (the Corps must consider); but when you're number one job is flood control, you need to focus on that," said Lawrence.

Farhat said the Corps monitors snow pack on the plains and in mountains in winter months. They then build on to their model the range of potential runoff and set the releases based on what is needed for the reservoirs of the six dams.

"Flood control was the primary factor for the releases," said Farhat.

Lawrence maintains that when the Omaha District USACE is notified of flaws they are sometimes unresponsive unless the city notifying them has a study to support their information, something that can be prohibitively expensive.

"There are other instances where I have proven the Corps wrong on their hydraulic modeling and it is documented," said Lawrence. "Now that we have (released) much more water than what they predicted . . . they cannot hide from the fact that they were dead wrong."

Levees in Fort Pierre continue to hold but groundwater and city water and utilities will need to continue to be monitored until flooding has subsided.

Sen. Tim Johnson, D-S.D., said on June 2 "I believe there will probably be some kind of hearing with Congress in the future (regarding the Corps)."

Excerpts of emails between Fort Pierre Public Works Director Brad Lawrence and a Washington, D.C. agency warning of flood consequences if water was not released early from the Oahe Dam

- Feb. 3 email from Brad Lawrence to Kevin Morley:

"I anticipate significant flooding from the Missouri River to the East Coast on nearly every significant river. This may be one for the record books.

I am including the Missouri River in that tally at this time. The Corps of Engineers has failed thus far to evacuate enough water from the main stem reservoirs to meet normal runoff conditions. This year's run off will be anything but normal. This is compounded by the anticipated flooding downstream. The Corps will hold back water to help alleviate the downstream flooding; filling the reservoirs to capacity in the process. Once full, they will pass everything that comes in. In April 2009 the inflow to Oahe was 140,000 cfs. That would be a flood of biblical proportions here and downstream.

I would also anticipate that those states that are down stream and not affected directly by all this moisture will become affected when the runoff reaches them.

I will guarantee that the James River and Big Sioux River in SD will flood. The Red and James in ND along with many tributaries to the Missouri River will flood. Everything in MN including the Mississippi looks like it is primed to flood; especially the Minnesota River.

It looks like this most recent storm went right down the Ohio River Valley. That can't be good for that system."

- Feb. 22 email from Kevin Morley to all WARN chairs:

"WARNS in Midwest should be getting ready for Flooding. Any water treatment or wastewater plant along any of these rivers should be ready for flooding...meaning preparing to implement a flood action plan and a recovery plan. Any electrical equipment below the 500 year flood line could be considered at risk and any of it below the 100 year flood line is at greater risk."

- April 26 email from Brad Lawrence to Kevin Morley:

"At this time, we are on pace to max out the local reservoir. The water content of the mountain snow pack is double what it was last year. That means that high discharges will occur for most of the summer and possibly into the fall season."

- May 6 email from Brad Lawrence to Kevin Morley:

"If you compare year over year, we are at double the water content for this same time last year in mountain snow pack. That will account for about 1/3 of our total runoff this year and is substantially more than in years past. That is assuming that we get enough warmth this

summer to melt it all. We failed to melt all the snow last summer, so it is entirely possible that we will build more year round snow pack, AKA the making of a glacier.”

Anne Thimsen

Legislative Assistant

Congresswoman Kristi Noem (SD - AL)

226 Cannon Building

Washington, DC 20515

202-225-2801

Classification: UNCLASSIFIED

Caveats: NONE



**NWO**

**From:** Charlie\_Scott@fws.gov  
**Sent:** Wednesday, June 15, 2011 1:07 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: NW CE public information on MO River releases/flooding - Facebook or web? (UNCLASSIFIED)

Thanks. You're the greatest. I promise to leave you alone now!

Charlie

"Farhat, Jody S  
NWD02"  
<Jody.S.Farhat@us  
ace.army.mil>

<Charlie\_Scott@fws.gov>

To

cc

06/15/2011 12:10  
PM

Subject

RE: NW CE public information on MO  
River releases/flooding - Facebook  
or web? (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Charlie,

The Omaha and Kansas City Districts are utilizing all the social media formats (facebook, twitter, u-tube, etc). You can get to them via links from their flood fight websites shown below.

<http://www.nwo.usace.army.mil/html/op-e/flood.html>

<http://www.nwk.usace.army.mil/Flood/index.cfm>

We've also set up a Joint Information Center (JIC) to field calls from the public and others. And there is a 5 p.m. stakeholder call each day for Congressional, state, local, tribal and media reps to dial into. The NWS and Corps provide updates including a Water Management update from me, and then we answer questions from participants. If you or other FWS personnel want to dial in, send an email to [mrjic@usace.army.mil](mailto:mrjic@usace.army.mil) and ask to be added to the email list so you'll get a call-in reminder every day. In case you want to dial in today and don't hear back from them in time (or just don't want a daily reminder) the phone number is below.

Reminder: The daily call will occur at 5 p.m. CT. Call in information is as follows:

Access Code: [REDACTED]  
Security Code: [REDACTED]

Thanks,  
Jody

-----Original Message-----

From: Charlie\_Scott@fws.gov [mailto:Charlie\_Scott@fws.gov]  
Sent: Wednesday, June 15, 2011 11:57 AM  
To: Farhat, Jody S NWD02  
Subject: NW CE public information on MO River releases/flooding - Facebook or web?

Jody,

One more question. Is the CE communicating with public via webpage and emails or have they set up a Facebook page like CE did back in May for the flooding on the Lower Miss. River/operation of the New Madrid Floodway?  
That Facebook page was very helpful to us and I know it was to the public in general. Here is that Facebook link in case NW Div. folks are interested in doing something similar. If communication via web, is one site better than other for updates, etc.?

Charlie

<http://www.facebook.com/BPNMFloodway>

----- Forwarded by Charlie Scott/R3/FWS/DOI on 06/15/2011 11:52 AM -----

Charlie  
Scott/R3/FWS/DOI

06/15/2011 11:36  
AM

"Farhat, Jody S NWD02"  
<Jody.S.Farhat@usace.army.mil>

To

cc

Subject

RE: simple description on CE  
website of MO River flood  
operations (UNCLASSIFIED)(Document  
link: Charlie Scott)

Jody,

Thanks. The briefing document will be helpful. Hang in there!

"Farhat, Jody S  
NWD02"  
<Jody.S.Farhat@us  
ace.army.mil>

<Charlie\_Scott@fws.gov>

To

cc

06/14/2011 06:18  
PM

Subject

RE: simple description on CE  
website of MO River flood  
operations (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Charlie, we've posted a flood briefing on the front page of our web site that may be useful, otherwise I would refer you to the Master Manual Section 7-04 for a discussion of flood control regulation.

In case you don't have them, the links are below:

Thanks,  
Jody

<http://www.nwd-mr.usace.army.mil/rcc/>

<http://www.nwd-mr.usace.army.mil/rcc/reports/mmanual/MasterManual.pdf>

-----Original Message-----

From: Charlie\_Scott@fws.gov [mailto:Charlie\_Scott@fws.gov]  
Sent: Tuesday, June 14, 2011 3:47 PM  
To: Farhat, Jody S NWD02  
Subject: simple description on CE website of MO River flood operations

Jody,

I had a request within FWS for general description of water control/flood operations - was there anything on CE website. I did some checking on NW Div. website and found all the sites relating to AOP, Project Orders, Standing Orders, and Master Manual (although I did not see a specific webpage for the MM but I could download the MM). Is there a short, succinct summary somewhere on CE website I can direct folks? Just checking  
- no big priority with all the stuff you all have happening now. If you have a link you could email me that would be fine. Thanks.

Charlie

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**[REDACTED] NWO**

---

**From:** McMahon, John R BG NWD  
**Sent:** Wednesday, June 15, 2011 1:07 PM  
**To:** [REDACTED] NWD; Farhat, Jody S NWD02  
**Subject:** Fw: Article

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To: McMahon, John R BG NWD  
Cc: Ruch, Robert J COL NWO  
Sent: Wed Jun 15 10:54:28 2011  
Subject: Fw: Article

FYSA  
Sent from BB

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Subject: Article

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<http://www.capjournal.com/articles/2011/06/14/news/doc4df6d00c78f8c907147522.txt>

## Pierre Cap Journal: Email warned of 'biblical flood'

February messages urged earlier release

By Ruth Brown

ruth.brown@capjournal.com

Published/Last Modified on Tuesday, Jun 14, 2011 - 06:05:19 am CDT

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"At this time, we are on pace to max out the local reservoir. The water content of the mountain snow pack is double what it was last year. That means that high discharges will occur for most of the summer and possibly into the fall season."

- May 6 email from Brad Lawrence to Kevin Morley:

"If you compare year over year, we are at double the water content for this same time last year in mountain snow pack. That will account for about 1/3 of our total runoff this year and is substantially more than in years past. That is assuming that we get enough warmth this summer to melt it all. We failed to melt all the snow last summer, so it is entirely possible that we will build more year round snow pack, AKA the making of a glacier."

Anne Thimsen

Legislative Assistant

Congresswoman Kristi Noem (SD - AL)

226 Cannon Building



Washington, DC 20515

202-225-2801

[REDACTED] NWO

---

**From:** [REDACTED] NWD  
**Sent:** Wednesday, June 15, 2011 12:56 PM  
**To:** Farhat, Jody S NWD02; Blechinger, Erik T NWO  
**Cc:** [REDACTED]  
**Subject:** FW: June 13th Meeting Follow Up (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, see Qs below. We should sit down and review what G2 fed us back on the call yesterday (Erik and I were there) re the Qs from Rep Noem.

Witt

-----Original Message-----

**From:** McMahon, John R BG NWD  
**Sent:** Wednesday, June 15, 2011 10:50 AM  
**To:** Grisoli, William T MG HQ02; 'Anne.Thimsen@mail.house.gov'; [REDACTED] NWD  
**Cc:** [REDACTED] HQ; [REDACTED]; Ruch, Robert J COL NWO  
**Subject:** Re: June 13th Meeting Follow Up

Anne:

Will give you a call later today (say 1600 CST). Am now on the ground in Hamburg, IA, so this will give us a chance to get back. Thanks.

Vr/John McMahon

---

**From:** Grisoli, William T MG HQ02  
**To:** 'Anne.Thimsen@mail.house.gov' <Anne.Thimsen@mail.house.gov>  
**Cc:** [REDACTED] HQ; Stokes, Debra J HQ02; McMahon, John R BG NWD; Ruch, Robert J COL NWO  
**Sent:** Wed Jun 15 10:46:05 2011  
**Subject:** Re: June 13th Meeting Follow Up

Ann, will do...I spoke to BG McMahon and Col Ruch and they are developing the info the Rep requested and will come back to you.

We will also review the article and provide some thoughts.

I am on the road, so I will have the Div/ Dist contact you and I will follow up soonest.

V/R, Bill

Sent from BB

---

**From:** Thimsen, Anne <Anne.Thimsen@mail.house.gov>  
**To:** Grisoli, William T MG HQ02  
**Cc:** [REDACTED] HQ; Stokes, Debra J HQ02  
**Sent:** Wed Jun 15 11:14:56 2011  
**Subject:** June 13th Meeting Follow Up

Major General Grisoli,

Thank you for taking the time to meet with us on Monday afternoon.

I wanted to follow up with you in regards to questions Representative Noem asked during our meeting. If you could provide answers to the following, it would be greatly appreciated:

- Historical data on releases for the past 15 years for Montana, North Dakota, and South Dakota (broken down by individual dam)
- Historical data on rainfall and snowpack for the past 15 years for Montana, North Dakota, and South Dakota (broken down individually)
- Elevation levels on all dams for the same time period

I have also attached an article from yesterday's Pierre Capital Journal. Representative Noem would like your comments on this article as well as the communications between your office(s) and Fort Pierre Public Works Direct Brad Lawrence since January, 2011.

We look forward to hearing from you.

Regards,

Anne Thimsen

Legislative Assistant

Congresswoman Kristi Noem (SD - AL)

226 Cannon Building

Washington, DC 20515

202-225-2801

Pierre Cap Journal: Email warned of 'biblical flood'

February messages urged earlier release

By Ruth Brown

ruth.brown@capjournal.com

Published/Last Modified on Tuesday, Jun 14, 2011 - 06:05:19 am CDT

FORT PIERRE – In a series of emails sent to a Washington D.C. agency in February, Fort Pierre Public Works Director Brad Lawrence essentially predicted "a flood of biblical proportions" if the U.S. Army Corps of engineers did not start releasing water from the Oahe Dam, the Capital Journal has learned.

In a series of emails sent to Kevin Morley of the American Water Works Association, Lawrence said, "The Corps of Engineers has failed thus far to evacuate enough water from the main stem reservoirs to meet normal runoff conditions. This year's runoff will be anything but normal. This is compounded by the anticipated flooding downstream."

And in a chillingly accurate summation, Lawrence said in a Feb. 3 document, "The Corps will hold back water to help alleviate the downstream flooding, filling the reservoirs to capacity in the process. Once full, they will pass everything that comes in."

That grim prediction has become reality as the Corps has been forced to release 150,000 cubic feet per second from the reservoir, which is within several inches of the top of the spillway. The result has been millions of dollars in costs to construct levees in Fort Pierre and Pierre, the displacement of dozens of people and severe economic impact to both cities. Water has intruded into parks and neighborhoods and currently threatens millions of dollars of real estate in affluent sections of Fort Pierre.

The Capital Journal obtained Lawrence's emails pursuant to a South Dakota Freedom of Information request filed with the city of Fort Pierre. The emails (see accompanying box with excerpts of the date and content) were among several sent to Morley, security and preparedness program manager for AWWA, in February to warn of his concerns about potential flooding.

But according to the Army Corps of Engineers no one at the Omaha office, which coordinates activities on the Missouri River system, was ever forwarded those emails.

"We had no correspondence with Fort Pierre during that time that I know of," said Jody Farhat, chief of the Missouri River basin water management office for the USACE.

Even though the Corps may not have been aware of Lawrence's dire prediction, those emails were forwarded by Morley to every WARN state chair in the nation.

Lawrence, who is the South Dakota WARN chair, said although he did not send that information to the Corps, he finds it "hard to believe that it wouldn't have gotten passed on to the Corps."

"The info that Brad (Lawrence) shared was meant to let other WARNs know that (Fort Pierre was) looking at a potential flood," said Morley, describing the genesis of the correspondence.

The email trail began with Lawrence's concerns about the excessive amount of runoff and winter snow pack that would soon be melting.

"In April 2009, the inflow to the Oahe (Dam) was 140,000 cubic feet per second," he said. "That would be a flood of biblical proportions here and downstream" were the Corps forced to pass that incoming water downriver. In fact, the current release rate of 150,000 cfs is the most ever released and will continue until mid-August.

But Farhat said even if the Corps had been aware of Lawrence's concerns, its models did not predict the event he envisioned. Farhat said the Corps' studies, even as late as May 1, showed above average snow pack in that last "week or two" of April.

"We were not anticipating these historic (release) levels by any stretch of the imagination until that perfect storm and rainfall we had," said Farhat. On May 20 Farhat said there was an "incredibly large" amount of rainfall over eastern Montana.

"Flows on the Yellowstone River went to record level," said Farhat. "That runoff from rainfall filled up the storage in the reservoir that we had intended to use for the snowmelt."

Lawrence also anticipated in February that the downriver states not directly affected by all the moisture would become affected when the runoff reaches them.

But Farhat maintains that the Corps was not "unduly concerned" about water releases until the May rainfall.

"I understand the whole realm of issues (the Corps must consider), but when you're number one job is flood control, you need to focus on that," said Lawrence.

Farhat said the Corps monitors snow pack on the plains and in mountains in winter months. They then build on to their model the range of potential runoff and set the releases based on what is needed for the reservoirs of the six dams.

"Flood control was the primary factor for the releases," said Farhat.

Lawrence maintains that when the Omaha District USACE is notified of flaws they are sometimes unresponsive unless the city notifying them has a study to support their information, something that can be prohibitively expensive.

"There are other instances where I have proven the Corps wrong on their hydraulic modeling and it is documented," said Lawrence. "Now that we have (released) much more water than what they predicted . . . they cannot hide from the fact that they were dead wrong."

Levees in Fort Pierre continue to hold but groundwater and city water and utilities will need to continue to be monitored until flooding has subsided.

Sen. Tim Johnson, D-S.D., said on June 2 "I believe there will probably be some kind of hearing with Congress in the future (regarding the Corps)."

Excerpts of emails between Fort Pierre Public Works Director Brad Lawrence and a Washington, D.C. agency warning of flood consequences if water was not released early from the Oahe Dam

- Feb. 3 email from Brad Lawrence to Kevin Morley:

"I anticipate significant flooding from the Missouri River to the East Coast on nearly every significant river. This may be one for the record books.

I am including the Missouri River in that tally at this time. The Corps of Engineers has failed thus far to evacuate enough water from the main stem reservoirs to meet normal runoff conditions. This year's run off will be anything but normal. This is compounded by the anticipated flooding downstream. The Corps will hold back water to help alleviate the downstream flooding; filling the reservoirs to capacity in the process. Once full, they will pass everything that comes in. In April 2009 the inflow to Oahe was 140,000 cfs. That would be a flood of biblical proportions here and downstream.

I would also anticipate that those states that are down stream and not affected directly by all this moisture will become affected when the runoff reaches them.

I will guarantee that the James River and Big Sioux River in SD will flood. The Red and James in ND along with many tributaries to the Missouri River will flood. Everything in MN including the Mississippi looks like it is primed to flood; especially the Minnesota River.

It looks like this most recent storm went right down the Ohio River Valley. That can't be good for that system."

- Feb. 22 email from Kevin Morley to all WARN chairs:

"WARNS in Midwest should be getting ready for Flooding. Any water treatment or wastewater plant along any of these rivers should be ready for flooding...meaning preparing to implement a flood action plan and a recovery plan. Any electrical equipment below the 500 year flood line could be considered at risk and any of it below the 100 year flood line is at greater risk."

- April 26 email from Brad Lawrence to Kevin Morley:

"At this time, we are on pace to max out the local reservoir. The water content of the mountain snow pack is double what it was last year. That means that high discharges will occur for most of the summer and possibly into the fall season."

- May 6 email from Brad Lawrence to Kevin Morley:

"If you compare year over year, we are at double the water content for this same time last year in mountain snow pack. That will account for about 1/3 of our total runoff this year and is substantially more than in years past. That is assuming that we get enough warmth this summer to melt it all. We failed to melt all the snow last summer, so it is entirely possible that we will build more year round snow pack, AKA the making of a glacier."

<http://www.capjournal.com/articles/2011/06/14/news/doc4df6d00c78f8c907147522.txt>

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

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**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 12:27 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: Another question, for marketing (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any idea on this answer? Thanks for your patience with these questions.

-----Original Message-----


From: Klippenstein, Brian (Blunt) [<mailto:Brian.Klippenstein@blunt.senate.gov>]  
Sent: Wednesday, June 15, 2011 12:26 PM  
To: [REDACTED]  
Subject: Another question, for marketing

Again, VERY general, suppose we did not have regulated system, any ball park estimate, or an anecdote or two on what we would be looking at?

We would like to have boss say: "look, if it weren't for this system, we could see record 700k cfs passing STJ unregulated overtopping all urban levees and Rosecrans as well as.....". FOR EXAMPLE.

Classification: UNCLASSIFIED  
Caveats: NONE



**From:** mrric [notify@weboffice.com]   
**Sent:** Wednesday, June 15, 2011 12:07 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** MRRIC: Water Quality Webinar Postponed

[Sent on behalf of Jim Redmond]

Partners in Recovery,

It has been only three weeks (May 24) since the first Water Quality webinar was held. Thanks for participating in that webinar and raising issues and recommendations. We will report at the next MRRIC meeting.

Memorial Day marked a dramatic shift in our efforts on behalf of the river.

The Water Quality Webinar scheduled for late June will be postponed till later in the summer. One Committee member quipped, "Our water quality problems have been washed down the river by the Flood of 2011."

Seriously, I want to express appreciation for the Corps and the basin citizens who are engaged in saving their communities. We know that all immediate efforts up and down the basin will be paralleled by our intense efforts to learn the lessons of 2011 and to update our management of this basin.

Ongoing tasks for WQ group organizers include obtaining a copy of the Pallid Sturgeon Working Group's contaminants of concern list.

In order to understand tributary influences on main stem water quality (connectivity), our EPA rep, Joe Cothorn will be gathering information on two exemplary tributaries, one from the lower basin and one from the upper basin.

Increased response to Water Quality concerns has led to more cooperation among the tribes, states, and the federal agencies. We are working to plan the next WQ webinar for the summer while identifying the topics of any WQ webinar for later this year.

If you participated in the May 24 webinar and want to make suggestions, please contact me or other members of the organizing team: Joe C., Verlon, Frank Pogge, Steve Fischer.

Thanks, Jim Redmond

**NWO**

**From:** Charlie\_Scott@fws.gov  
**Sent:** Wednesday, June 15, 2011 11:57 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** NW CE public information on MO River releases/flooding - Facebook or web?

Jody,

One more question. Is the CE communicating with public via webpage and emails or have they set up a Facebook page like CE did back in May for the flooding on the Lower Miss. River/operation of the New Madrid Floodway?

That Facebook page was very helpful to us and I know it was to the public in general. Here is that Facebook link in case NW Div. folks are interested in doing something similar. If communication via web, is one site better than other for updates, etc.?

Charlie

<http://www.facebook.com/BPNMFloodway>

----- Forwarded by Charlie Scott/R3/FWS/DOI on 06/15/2011 11:52 AM -----

Charlie  
Scott/R3/FWS/DOI

06/15/2011 11:36  
AM

"Farhat, Jody S NWD02"  
<[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)>

To

cc

Subject

RE: simple description on CE  
website of MO River flood  
operations (UNCLASSIFIED)(Document  
link: Charlie Scott)

Jody,

Thanks. The briefing document will be helpful. Hang in there!

"Farhat, Jody S  
NWD02"  
<[Jody.S.Farhat@usace.army.mil](mailto:Jody.S.Farhat@usace.army.mil)>

<[Charlie\\_Scott@fws.gov](mailto:Charlie_Scott@fws.gov)>

To

cc

06/14/2011 06:18  
PM

Subject

RE: simple description on CE  
website of MO River flood  
operations (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Charlie, we've posted a flood briefing on the front page of our web site that may be useful, otherwise I would refer you to the Master Manual Section 7-04 for a discussion of flood control regulation.

In case you don't have them, the links are below:

Thanks,  
Jody

<http://www.nwd-mr.usace.army.mil/rcc/>

<http://www.nwd-mr.usace.army.mil/rcc/reports/mmanual/MasterManual.pdf>

-----Original Message-----

From: [Charlie.Scott@fws.gov](mailto:Charlie.Scott@fws.gov) [mailto:Charlie.Scott@fws.gov]  
Sent: Tuesday, June 14, 2011 3:47 PM  
To: Farhat, Jody S NWD02  
Subject: simple description on CE website of MO River flood operations

Jody,

I had a request within FWS for general description of water control/flood operations - was there anything on CE website. I did some checking on NW Div. website and found all the sites relating to AOP, Project Orders, Standing Orders, and Master Manual (although I did not see a specific webpage for the MM but I could download the MM). Is there a short, succinct summary somewhere on CE website I can direct folks? Just checking  
- no big priority with all the stuff you all have happening now. If you have a link you could email me that would be fine. Thanks.

Charlie

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Charlie\_Scott@fws.gov  
**Sent:** Wednesday, June 15, 2011 11:36 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: simple description on CE website of MO River flood operations (UNCLASSIFIED)

Jody,

Thanks. The briefing document will be helpful. Hang in there!

"Farhat, Jody S  
NWD02"  
<Jody.S.Farhat@us  
ace.army.mil>

<Charlie.Scott@fws.gov>

To

cc

06/14/2011 06:18  
PM

Subject

RE: simple description on CE  
website of MO River flood  
operations (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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7-04

for a discussion of flood control regulation.

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Thanks,  
Jody

<http://www.nwd-mr.usace.army.mil/rcc/>

<http://www.nwd-mr.usace.army.mil/rcc/reports/mmanual/MasterManual.pdf>

-----Original Message-----

From: [Charlie.Scott@fws.gov](mailto:Charlie.Scott@fws.gov) [mailto:Charlie.Scott@fws.gov]  
Sent: Tuesday, June 14, 2011 3:47 PM  
To: Farhat, Jody S NWD02

Subject: simple description on CE website of MO River flood operations

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- no big priority with all the stuff you all have happening now. If you have a link you could email me that would be fine. Thanks.

Charlie

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 10:50 AM

-----Original Message-----

From: [Rebecca.Kern@noaa.gov](mailto:Rebecca.Kern@noaa.gov) [<mailto:Rebecca.Kern@noaa.gov>]

Sent: Wednesday, June 15, 2011 10:48 AM

To: [REDACTED] 7 NWO, Bengawan, K 774, K 770;

Dan.Nietfeld@noaa.gov; [REDACTED]

[REDACTED]; Rebecca.Kern@noaa.gov; S [REDACTED], [REDACTED]

~~CONFIDENTIAL~~

Cc: [REDACTED], [REDACTED]

Subject: Weather Summary June 15

Weather Summary Briefing, Jun 15.

Over the past 24 hours,

Heavy rainfall amounts were mainly across the northern plains. South central North Dakota had about 0.50" on average however isolated amounts of 1.75-2.60" were reported between Bismarck and Jamestown. This same area has had precipitation over the last 3 days. Some 3 day precipitation accumulation totals are Bismarck 1.30", Dickinson 1.70", Jamestown 2.17" and Garrison 1.26".

See attached for 24-hour totals.

### Weather Synopsis:

A series of large systems will be moving across the northern Rockies and into the northern Plains region over the next several days. This will bring continued chances for showers and thunderstorms. Some indications (see attached document "percent of normal") in the 10 day forecast show that much of the central and northern plains precipitation will be anywhere from 200-500% above normal. Temperatures will remain cool over the northern Rockies which continues to delay snowmelt.

The Day 1 QPF (from 700 hours Wednesday to 700 hours Thursday):

Not much going on.

See attached.

The Day 2 QPF (from 700 hours Thursday to 700 hours Friday):

Some very heavy rainfall is possible across a good section of the central plains along a warm front. This front will basically extend across the entire Missouri River Basin. Rich moisture will be in place across the central plains and precipitation amounts along this boundary of near 1.75" are certainly possible.

See attached.

The Day 3 QPF(from 700 hours Friday to 700 hours Saturday):

Heavy rainfall is expected again along the warm front, however this front should shift north into the northern plains. Locally heavy rainfall will be possible once again.

See attached.

Wind forecast for Fort Peck: West winds 10-15 mph with gusts 20-25 mph today, becoming northwest overnight and gusting 20-25 mph. Light southwest winds through Wednesday.

Wind forecast for Williston: West northwest winds 15-20 mph with gusts 20-25 today, becoming light and variable overnight and into Wednesday morning. Southwest winds 10-15 mph Wednesday afternoon.

Wind forecast for Garrison: Northwest winds 15-25 mph with gusts 25-30 mph today, decreasing to light overnight winds that shift to the southeast. Wednesday afternoon southeast winds increase to 10-15 mph.

Wind forecast for Oahe: Northwest winds 20-25 mph with gusts 25-30 mph today, becoming light, southeast winds overnight. Light winds Wednesday morning increase to southeast winds 10-15 mph on Wednesday afternoon

Temperature outlook of note:

Temperatures will remain cool over the northern Rockies which will continue to delay snowmelt.

See attached temperature table.

7 Day Temperature Forecasts (High/Low)						
15-Jun-11						
Location	Wed	Thu	Fri	Sat	Sun	Mon
	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
Helena, MT	64	62/38	67/41	70/43	66/47	68/47
Livingston, MT	70	65/41	64/42	69/43	64/43	65/44
Billings, MT	75	69/46	68/48	74/50	71/48	71/49
West Yellowstone, MT	65	57/34	61/33	63/34	57/36	60/35
Cody, WY	74	65/45	67/45	69/47	65/48	64/47
Sheridan, WY	74	69/46	68/49	73/49	70/47	67/49
Casper, WY	83	77/50	74/47	77/49	72/48	68/48
Laramie, WY	75	76/47	73/46	72/51	72/48	67/46

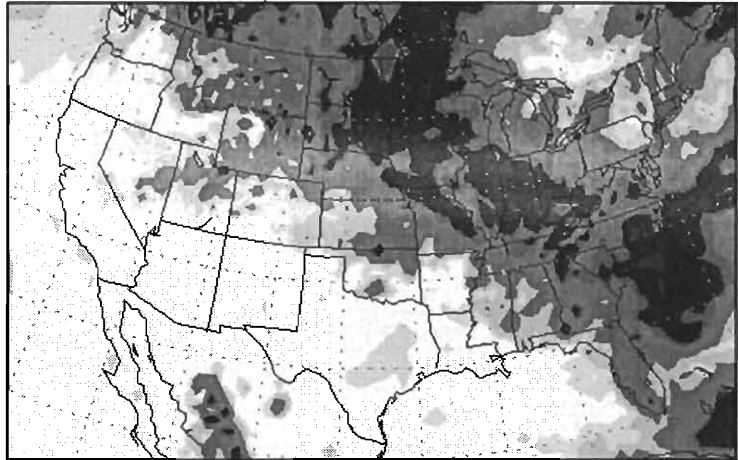


Tue
21-Jun
71/47
65/42
70/48
65/36
67/47
67/46
73/46
70/46

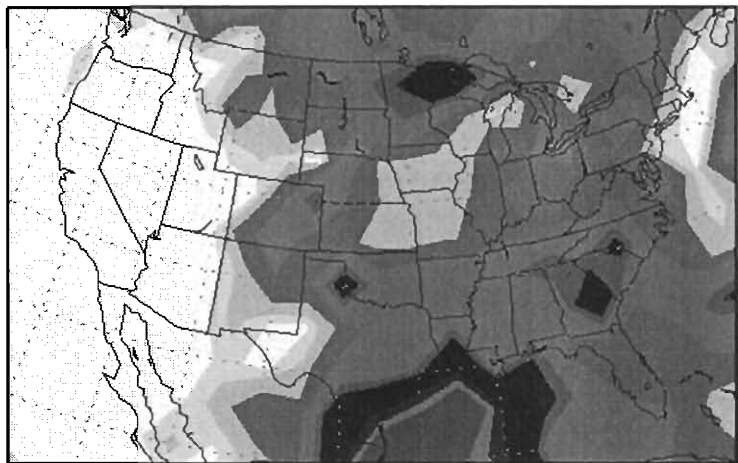
# Precipitation Forecast

Precipitation (inches)  
during the period:

Wed, 15 JUN 2011 at 00Z  
—to—  
Wed, 22 JUN 2011 at 12Z

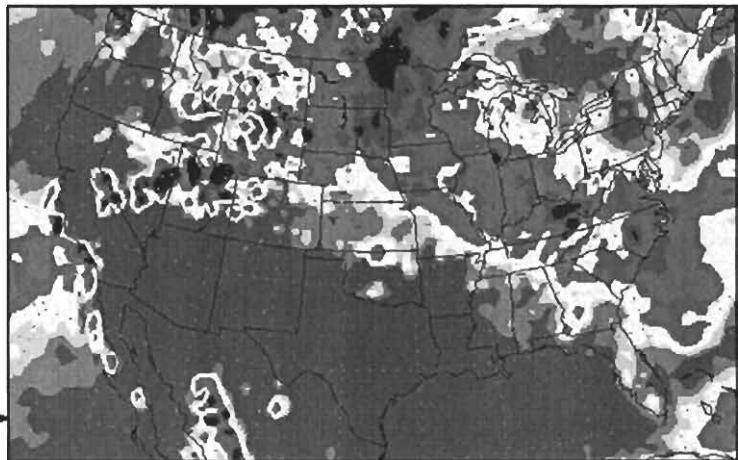
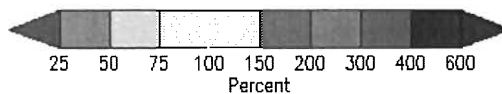


Thu, 23 JUN 2011 at 00Z  
—to—  
Fri, 01 JUL 2011 at 00Z

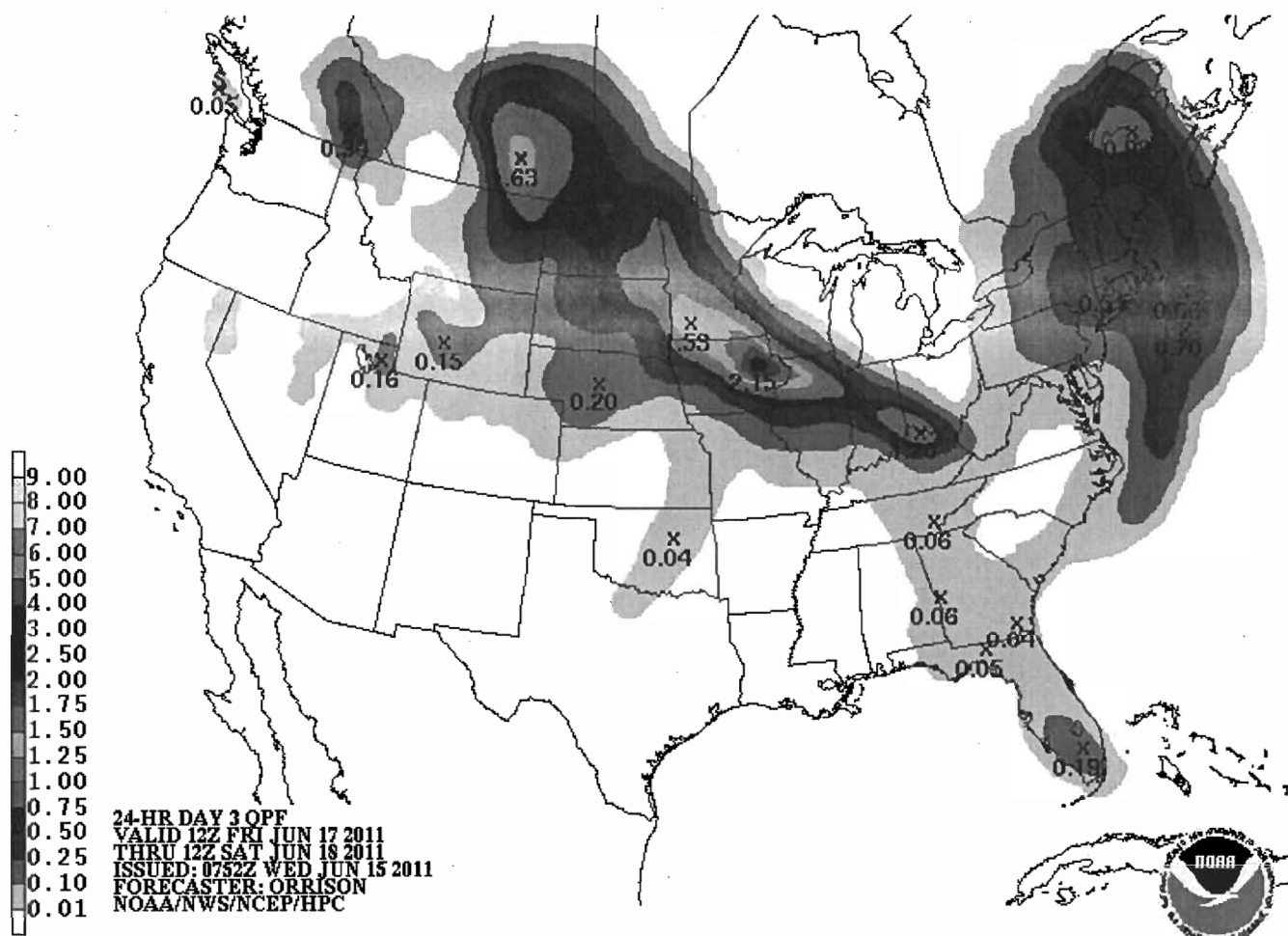


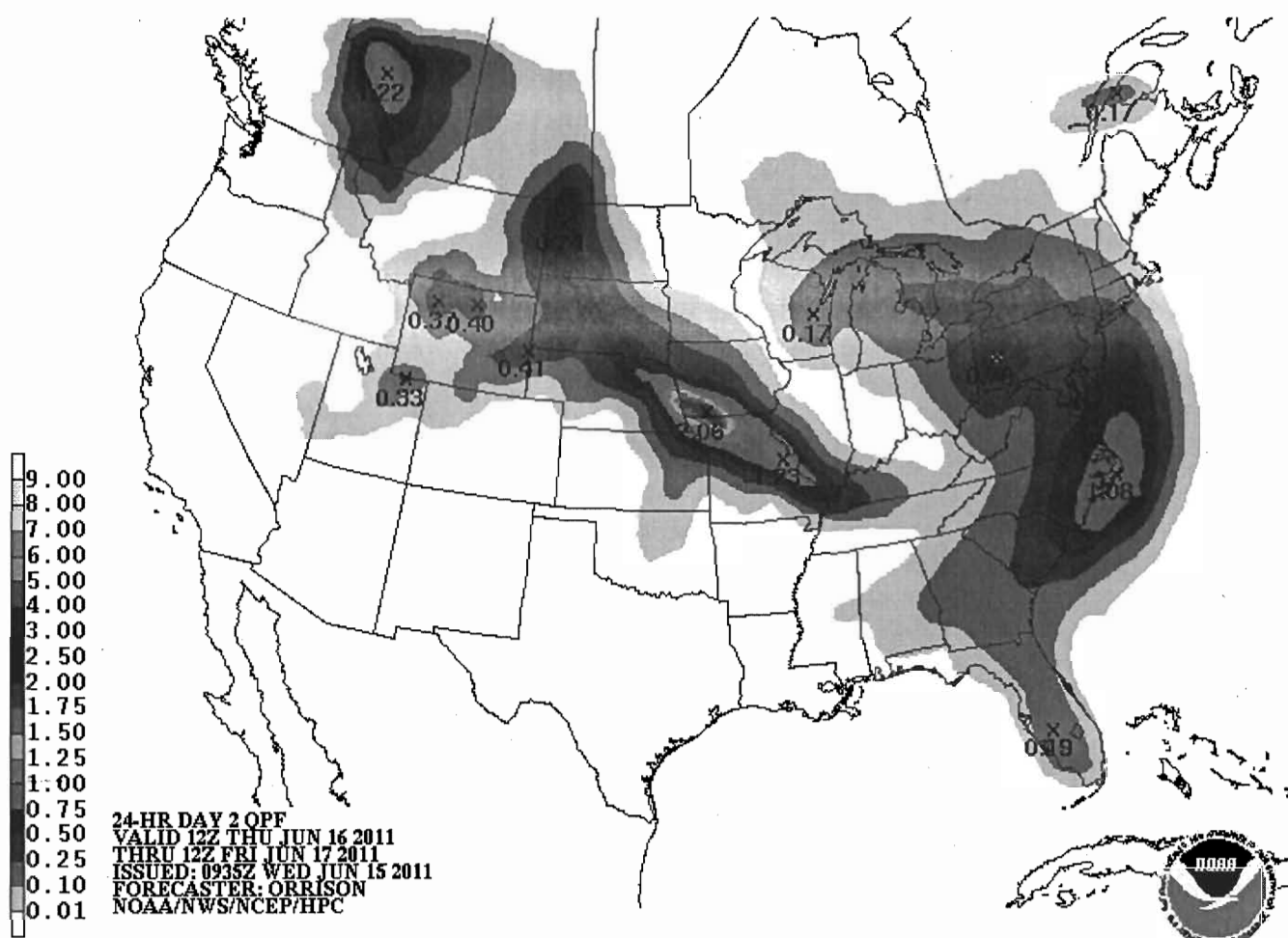
Precipitation (percent of normal)  
during the first 7.5-day period:

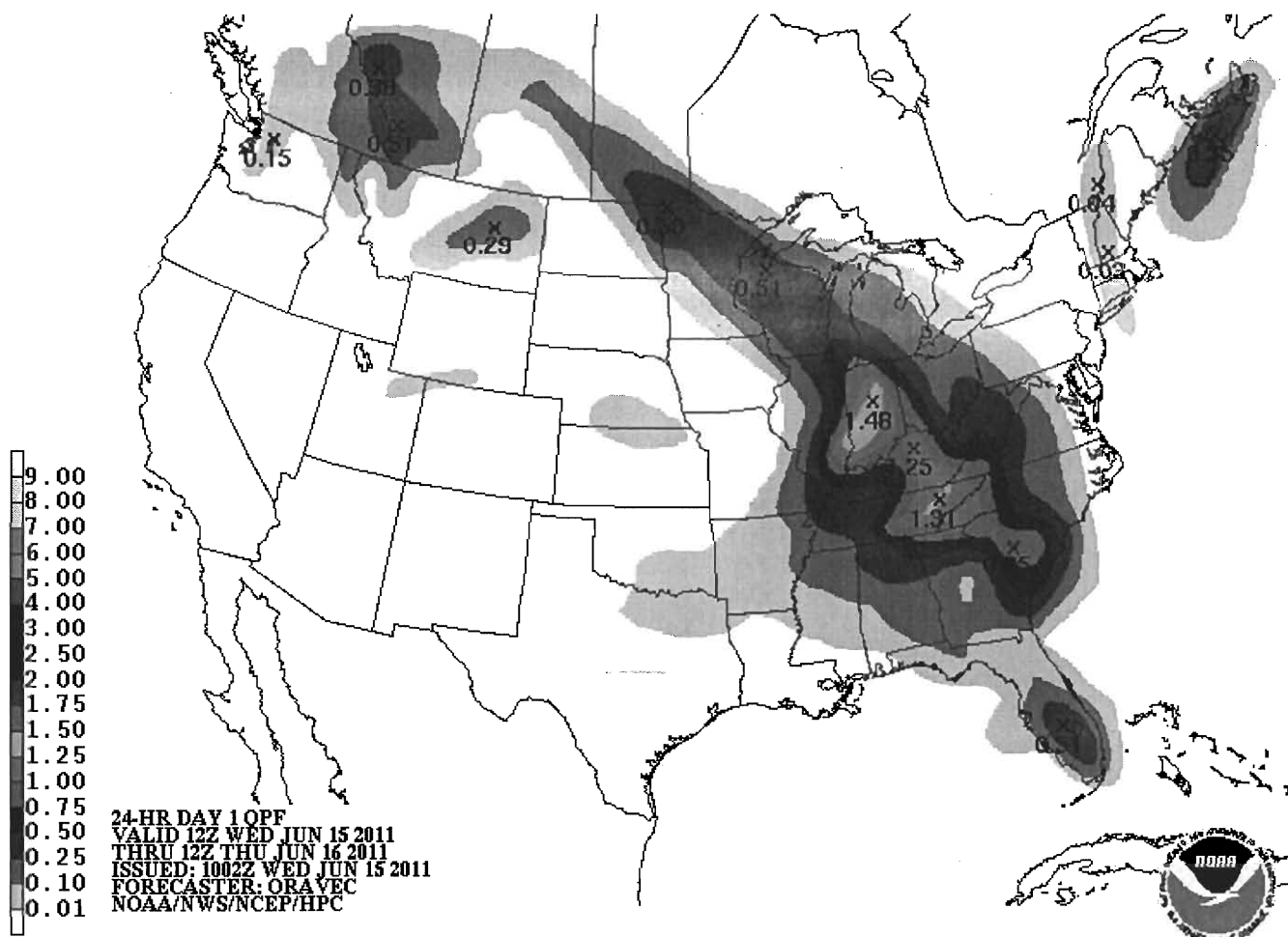
Wed, 15 JUN 2011 at 00Z  
—to—  
Wed, 22 JUN 2011 at 12Z

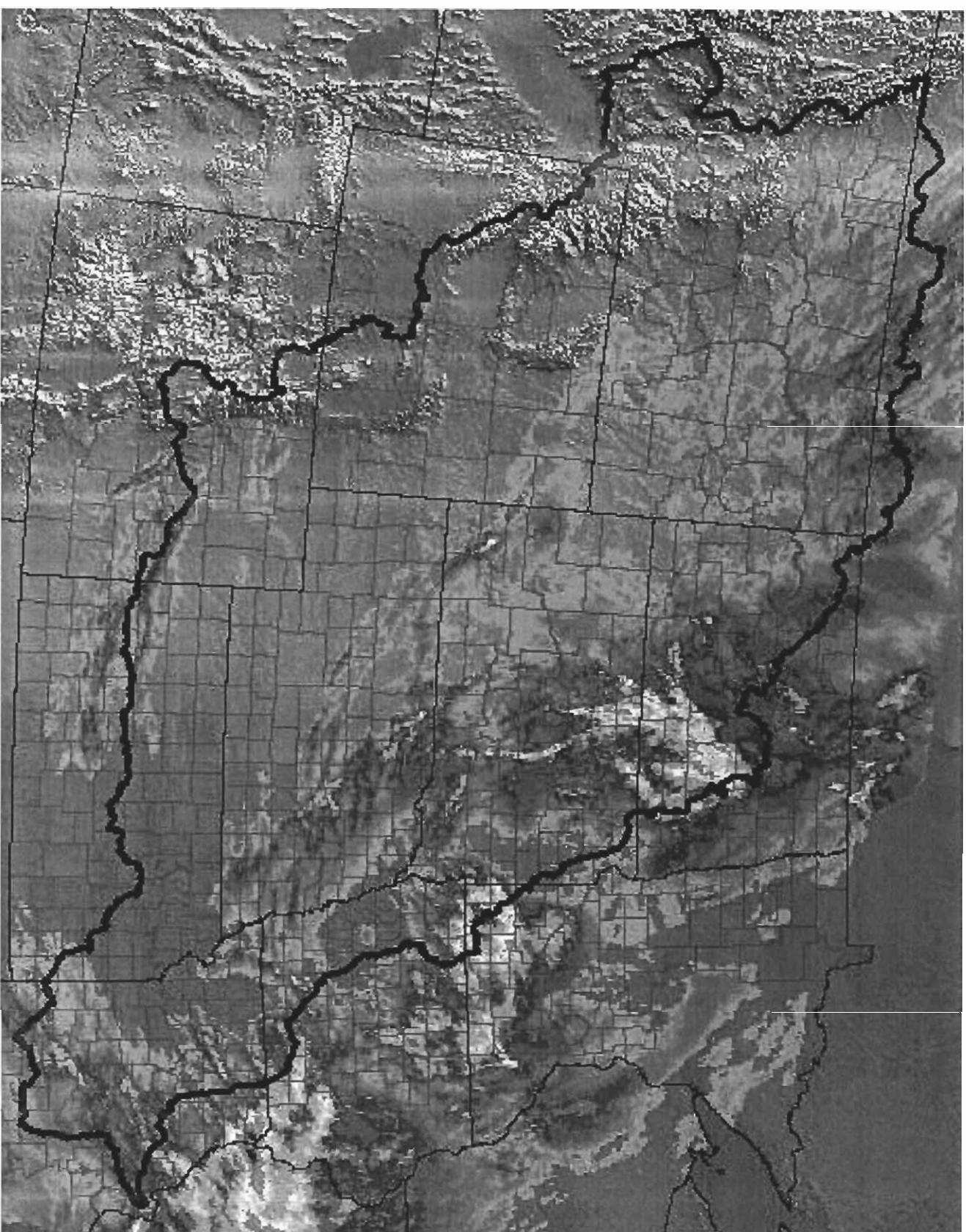


Precipitation forecasts from the National Centers for Environmental Prediction.  
Normal rainfall derived from Xie-Arkin (CMAP) Monthly Climatology for 1979–2003.  
Forecast Initialization Time: 00Z15JUN2011









0.01 0.05 0.10 0.25 0.50 0.75 1.00 1.50 2.00 2.50 3.00 4.00 5.00 6.00 8.00 +

**MBRFC 24-Hour Gage Biased Estimated Rainfall (inches)**

**Ending: 6/15/2011 at 7:00AM CDT**

Created 6/15/2011 at 7:32 AM CDT

6/15/2011

State	City	Amount of above normal precip (in)
ND	Jamestown	1.72
	Valley City	0.71
SD	Aberdeen	0.69
	Sioux Falls	0.71
IA	Orange City	0.74
	Sheldon	1.22
NE	O'Neill	0.54
Southwest MN	Luverne	2.79
	Slayton	2.79
	Pipestone	1.89
	Tracy	4.84
	Windom	2.34
	Worthington	1.32

**NWO**

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 10:37 AM  
**To:** Farhat, Jody S NWD02; [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED]  
**Subject:** FYI about hydro conditions from WFO-Glasgow (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYSA.

[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED] (6 )

-----Original Message-----  
From: Juliann Meyer [mailto:Julie.Meyer@noaa.gov]  
Sent: Wednesday, June 15, 2011 10:31 AM  
To: [REDACTED]  
Subject: FYI about hydro conditions from WFO-Glasgow

Hi Roger, state EOC, Marv@DNRC and Julie at RFC,

We are gradually improving, and expect that to continue on the Milk River for the next five days. Still have numerous roads underwater, and damaged roads needing repair.

The Musselshell is expected to remain high for some time yet, as the mountain snow melts are still coming, and we have a wetter forecast this week again.

The Missouri River had 6 known homes evacuated. Three on the Fort Peck Reservation south of Poplar, and three in Richland County. The DES coordinator from Richland County told me there will be a significant loss of farmland due to the flooding. Between that area on the Missouri, and the earlier flooding on Yellowstone River, the sugar beet crop in Richland County (where the processing plant is) is going to be hurting this year.

Biggest weather concern at this time is Friday night into Saturday, 1-2 inches of QPF just north of our CWA in Canada. This could be a significant problem, depending on what the Canadians do with the water, and if they have any storage left in their reservoirs.  
[http://www.hpc.ncep.noaa.gov/qpf/fill\\_99qwbq.gif](http://www.hpc.ncep.noaa.gov/qpf/fill_99qwbq.gif)

Tanja

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 10:24 AM  
**To:** Blechinger, Erik T NWO  
**Cc:** Farhat, Jody S NWD02  
**Subject:** St. Louis District Press Conference Tomorrow Regarding Missouri River (UNCLASSIFIED)  
**Attachments:** MVS\_Comm\_Plan\_MissouriFlood\_2011.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Erik,

FYI. I heard from a colleague at the National Weather Service that St. Louis District was planning a press conference tomorrow morning. The areas highlighted in yellow indicate verbiage that is not quite in line with what we're telling folks through the NWO, NWK and MRBWM websites.

[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

## **Press Conference: Missouri River Flooding 2011 – St. Louis**

### **Purpose**

Convey to the public the potential for flooding along the Missouri River and how levees in the St. Louis area are expected to perform.

### **Objective**

Establish a better understanding in the media and public of the actual impacts of upstream releases on the St. Louis area.

### **Format**

The format will be a press conference, followed by Q&A. A short availability for stand-up interviews will take place immediately following. PAO will escort media to and from the conference.

The conference will be held in the Emergency Operations Center on the 4<sup>th</sup> Floor of the RAY Building at 0930. Participants are asked to arrive no later than 0845 for pre-brief and dry run. USACE will have SMEs from, Emergency Management, Levee Safety and Water Control available.

<b>0930-0935</b>	PAO will convene, give brief background, info on graphics, and introduce Subject Matter Experts
<b>0935-0945</b>	National Weather Service (Wes Browning, meteorologist) will brief the long-range forecast for river stages (range of average and high precip.) at Herman, St. Charles and St. Louis gages.
<b>0945-0955</b>	USACE St. Louis (Col. O'Hara) will brief the possible impacts of the two scenarios on levees in the St. Louis district, as well as residual risk and USACE readiness.
<b>0950-1000</b>	Q&A
<b>1000-1015</b>	Convene press conference and allow for stand-ups

### **Key Messages**

Current conditions indicate only minor flooding is expected in the St. Louis area. However, there is potential for higher water if significant rain falls in the watershed.

Based on our inspections, the Corps of Engineers expects the levees in our area to perform as designed. However, communities need to be aware there is always risk inherent with flooding. This flood event is expected to last well into August.

St. Louis District is working with the National Weather Service, other Corps districts upstream, levee owners, emergency management agencies and other federal, state and local authorities to minimize the risk of flooding in our area.

## **Talking Points**

### **Forecasts - NWS**

Forecasts include releases from upstream dams, and account for a range of scenarios based on average rainfall in the watershed and significant rainfall.

Average rainfall in these forecasts is based on the last four years of precipitation in the area, which trend higher than historical averages.

Significant rainfall can be described as XXX Inches of rain over a period of XX hours/days.

The average rainfall scenario would result in a river stage of **27** at Herman, **28** at St. Charles and **XX** at St. Louis.

The high rainfall scenario would result in river stages of up to **33** at Herman, **37** at St. Charles and **XX** at St. Louis.

Current precipitation forecasts for the next 28 days show...

### **Average Rainfall scenario - USACE**

Releases from upstream dams have been increased gradually, so some of that water is already here. We should see the full impact of the maximum release by the end of June.

Based on current forecasts and conditions, the Corps of Engineers expects only minor flooding in our area. St Louis District's are of responsibility on the Missouri River starts near Washington, Missouri.

With the full release of water from Gavins Point Dam and an average amount of additional rainfall in the watershed, St. Louis District levees are at no risk of overtopping and are expected to perform as designed.

The projections we've developed with the National Weather Service and our engineers show that our Missouri and Mississippi River levees will be able to withstand this amount of water without any serious problems. Below average rainfall can lessen these predictions, as well.

### **Significant Rainfall Scenario - USACE**

With significant additional rainfall, there is a possibility for a more serious flood event. With higher river stages, some levees in our area could be overtopped, and all would be under significant stress.

If river stages reach the high end of our forecasts, the following levees would be at risk of overtopping:

Public safety is our top priority. We are prepared in the event conditions change. We have already been in contact with levee districts and emergency managers, and the Corps will be ready to provide assistance in a flood fight.

### **Levee information - USACE**

Levees upstream of Washington Missouri fall under our Kansas City District. We have contacts on our website for information on levees outside St. Louis District.

The flooding is not expected to impact the Mississippi River stage enough to cause water to flow into the breached opening of the Bird's Point/New Madrid Floodway in Missouri.

We will continue to provide updated information as it becomes available so that emergency managers, local and state officials, residents and businesses can make informed decisions.

The St. Louis District 2011 Flood Fight page will provide our maps, information and links to our partner agencies like NWS and other Corps Districts. Maps and graphics showing inundation, levee status and river forecasts are provided for planning and informational.

### **Missouri River dams and conditions - USACE**

The dams upstream on the Missouri River are structurally sound, fully functional and operating as designed.

On January 28, 2011, the full flood capacity of the Missouri River reservoir system was available. Until the beginning of May, there was no reason for releases beyond normal levels. A delayed melt and significant extra rain filled the system.

Gavins Point Dam is releasing its maximum amount of water (150,000 cubic feet per second) as of Tuesday, June 14. It takes approximately 10 days for those releases hit the St. Louis District area.

### **Background Info**

Dams upstream on the Missouri River were operated for flood control early in the season, holding back water that would have further impacted downstream flooding. In accordance with the Missouri River Master Manual, spillway gates have been opened at Fort Peck, Garrison, Big Bend, Fort Randall, and Gavins Point, to make required releases. Peak releases are expected to last until at least August.

Gavins Point Dam is releasing 150,000 cfs as of Tuesday, June 14. It takes approximately 10 days for those releases hit the St. Louis District area.

Below average rainfall could mean lower stages, however, if we should receive any significant rains on top of those releases, we could see gage readings of up to 33' at Hermann, 32' at Washington, and 37' at St. Charles.

GAGE	FS	Minimum*	Phase I	Phase II	Maximum**
Hermann	21	27	23	26	33
Washington	20	23	22	25	32
St. Charles	25	28	26	30	37

\*Minimum-expected stage with max releases from Gavins Pt. and avg. rainfall

\*\*Maximum-expected stage with significant rainfall

## Q&A

Q- What is considered significant rainfall? What is average?

A -

Q- If there are levees overtopping upstream, what does that mean for St. Louis?

A- Levee breaches upstream should not have a substantial impact on the amount of water coming downstream.

Q – What happens if we have a levee breach in our area?

A – Corps flood fight teams are prepared to respond in the event any of our levees are at risk of failure. As water levels rise, so does the amount of monitoring and vigilance by the Corps, emergency managers and levee districts.

Q – How do you know these levees will hold up?

A - The Corps of Engineers, along with federal, state, local and private partners, is responsible for assessing the condition of levees and flood risk and communicating their findings so individuals can make well informed safety decisions and take appropriate action. The levees on the Missouri have been inspected and are expected to perform as designed.

Q- What does minimally acceptable mean?

A – A Minimally Acceptable rating means areas of concern have been identified and need to be addressed, but do not compromise the levee system. Looking at the current projections, the systems rated minimally acceptable should be able to withstand this flood. However, areas where issues were found will be monitored closely.

Q - Why are the dams releasing water if it means areas will flood?

A - The need for high releases is due to a few factors: 1) plains snow; 2) extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in one month (300% of normal in May); and 3) additional mountain snowpack accumulation to record levels in May and a delayed melt.

Q - If the water gets high, will the Corps issue evacuation.

A - The Corps of Engineers will not issue evacuation orders. People should listen to their county emergency management agencies. We provide the best information available so that emergency managers, local and state officials, residents and businesses can make informed decisions.

Q - Why didn't you release more water earlier in the year?

A: At no time prior to the repeated rounds of heavy rain in the Upper Basin in May, resulting in record single-month inflows into our System, did we have reason to expect record releases. Immediately after this rainfall event we began incrementally stepping up our releases in a controlled manner, while still allowing people downstream to prepare for a record runoff water year.

Q - How long will you continue at the projected 150,000 cfs release rate?

A - These peak releases will likely extend well into August. We need to maintain these high releases until the reservoirs are back down to a manageable level. The other guiding principle is that we want to have the releases in the fall at a low enough level for things to dry out and repair work to start before winter. This applies both to our mainstem dams and all the levees downstream.

Q- If we have a high water event, will you blow up a levee?

A - No. The levees breached at Bird's Point/New Madrid, Missouri, are part of a floodway, which is a component of a larger flood control system on the lower Mississippi River. There is no overall flood control system or floodways on the Missouri.

#### POCs

##### USACE Public Affairs

Mike Petersen	314-331-8002	bb: 314-452-7325
Mary Markos	314-331-8095	
Romanda Walker	314-331-8090	

NWS [REDACTED] 6 [REDACTED] cell [REDACTED]

MVS EOC (flood fight, mapping info, prep)- [REDACTED] [REDACTED]

MVS Water Control (water levels, reservoir ops, forecasts) [REDACTED] [REDACTED]

MVS Geotech/Levee Safety [REDACTED] [REDACTED]

[REDACTED] NWO

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From: [REDACTED]  
Sent: Wednesday, June 15, 2011 10:02 AM  
To: Farhat, Jody S NWD02; [REDACTED]  
Subject: FW: 3-Week Tabular, System Operation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

FYSA.

[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED]

-----Original Message-----

From: [REDACTED]  
Sent: Wednesday, June 15, 2011 9:52 AM  
To: [REDACTED]  
Subject: FW: 3-Week Tabular, System Operation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]  
I know [REDACTED] is trying to help tell our story, but we really need your folks to let us tell our story. There is ABSOLUTELY NO TRUTH to the 200,000 cfs GAPT release scenario. We have a firm handle on what inflows are and what we expect them to be over the next week. We have been working hand-in-hand with Omaha District regarding project conditions and it is clearly understood by all why we want to avoid using the Oahe spillway.

If you happen upon anyone, and I mean anyone, in the Kansas City District that needs reassurance about the decision-making of this office, please have them call Jody, myself or Mike Swenson and we will speak with them directly.

Thanks.

[REDACTED]  
[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED]

-----Original Message-----

From: [REDACTED]  
Sent: Wednesday, June 15, 2011 9:36 AM  
To: [REDACTED]  
Subject: RE: 3-Week Tabular, System Operation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED]

Please refer the rumblers directly to this office or MRJIC.

[REDACTED]

[REDACTED] D.F.  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE

[REDACTED]

[REDACTED] (S)

-----Original Message-----

From: [REDACTED]  
Sent: Wednesday, June 15, 2011 9:27 AM  
To: [REDACTED]  
Subject: 3-Week Tabular, System Operation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] - could you or someone from your office call me when you have a chance? As your tabular daily forecasts continue to show increasing inflow, we are hearing more rumblings about the potential for increasing Gavins to 200,000 cfs from other people in the District. I would like to better understand your thinking to provide some reassurance.

You still have a MAF in FTRA to buffer against increased releases from upstream and you can continue to surcharge Garrison and Fort Peck to some extent by increasing spillway releases and cutting back outlet releases. I don't understand why you want to avoid using the spillway at Oahe. But your tabular daily is showing an increasing chance of hitting the top of the pool at 1620. Were you able to use upstream trib replacement storage this season?

When you or someone else has a chance.

[REDACTED]

[REDACTED]

Classification: UNCLASSIFIED  
Caveats: FOUO

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Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO



Classification: UNCLASSIFIED

Caveats: FOUO

**NWO**

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 9:56 AM  
**To:** Hofmann, Anthony J COL NWK; [REDACTED]; Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** RE: Kansas Officials to Hold Telephone Town Hall for Kansans in Missouri River Flood Zone (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Sir,

Apologize for not considering this. I just talked to Jenkins' staff and their plan is to have you and Beth Freeman of FEMA both give updates/overviews. Their intent is to "knock out" big questions from these overviews in just a few minutes, so the hour can be devoted to questions.

I can work with [REDACTED] on putting together some talking points. I would anticipate questions to be on par with what was expected last week from Jenkins and Graves.

V/R,

-----Original Message-----

**From:** Hofmann, Anthony J COL NWK  
**Sent:** Wednesday, June 15, 2011 9:48 AM  
**To:** [REDACTED]; [REDACTED]; Farhat, Jody S NWD02  
**Cc:** [REDACTED]  
**Subject:** RE: Kansas Officials to Hold Telephone Town Hall for Kansans in Missouri River Flood Zone (UNCLASSIFIED)

The only question I have is this: are we expected to provide any type of overview so the callers have some perspective of the current situation?  
In essence, during introductions, I expect to introduce myself, Jody and [REDACTED]. Should we then go into what has transpired in the upper basin (overview by Jody), current conditions (Jody and [REDACTED]) and what measures that NWK continues to take in preparation for additional flow from Gavins?

Without more info, I think we should be prepared to do this.  
COL H

Building Strong!

Colonel Anthony J. Hofmann, PMP  
Commander, Kansas City District  
U.S. Army Corps of Engineers

[REDACTED]  
[REDACTED]  
<http://www.nwk.usace.army.mil/>

-----Original Message-----

From: Blair, Amy E NWK

Sent: Wednesday, June 15, 2011 9:40 AM

To: Hofmann, Anthony J COL NWK; [REDACTED] NWK; Farhat, Jody S NWD02

Cc: [REDACTED] NWK

Subject: FW: Kansas Officials to Hold Telephone Town Hall for Kansans in Missouri River Flood Zone (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

COL Hofmann,

From Congresswoman Jenkins' office:

The host line number is:

[REDACTED] PIN = [REDACTED]

Below is the press release for tonight's call. Let me know if you need anything.

V/R,  
[REDACTED]

From: Brainard, Colin [<mailto:Colin.Brainard@mail.house.gov>]

Sent: Wednesday, June 15, 2011 9:36 AM

To: Blair, Amy E NWK

Subject: FW: Kansas Officials to Hold Telephone Town Hall for Kansans in Missouri River Flood Zone

Amy,

Here is the press release issued by our office on tonight's call.

-Colin

From: Fitzpatrick, Sean

Sent: Tuesday, June 14, 2011 6:53 PM

To: Fitzpatrick, Sean

Subject: Kansas Officials to Hold Telephone Town Hall for Kansans in Missouri River Flood Zone

CONTACT:

Jenkins: Sean Fitzpatrick (202) 225-6601

Brownback: Sherriene Jones-Sontag (785) 338-3015

FOR IMMEDIATE RELEASE

June 14, 2011

Kansas Officials to Hold Telephone Town Hall for Kansans in Missouri River Flood Zone

WASHINGTON - Kansas Governor Sam Brownback and U.S. Congresswoman Lynn Jenkins will host a live telephone town hall Wednesday evening with Insurance Commissioner Sandy Praeger, representatives from the Army Corps of Engineers, FEMA, various state agencies and other local officials to discuss and take questions about the potential flooding in Northeast Kansas.

The goal of this call will be to inform residents of Northeast Kansas about the resources available to them and answer any questions they may have about the flood and the State and Federal Government's response.

Calls will be placed to the residents of Atchison, Doniphan, and Leavenworth counties at 7:15pm CST, but all interested parties are welcome to join this hour long call by dialing [REDACTED] (PIN: [REDACTED]).

#### DETAILS

WHO:  
Governor Sam Brownback  
Congresswoman Lynn Jenkins  
Insurance Commissioner Sandy Praeger  
Beth Freeman, Regional Administrator of FEMA District VII Dean Ownby, NFIP Branch Chief Col. Anthony Hoffman, USACE District Engineer of the Kansas City District Jud Kneuen, USACE Chief of Emergency Management of the Kansas City District Jody Farhat, USACE Reservoir Control Center Various other state agencies and officials

WHAT: Live telephone town hall to discuss and take questions about the potential flooding in Northeast Kansas

WHEN: Wednesday June 15, 2011 7:15 p.m. CST

WHERE: [REDACTED] (PIN: [REDACTED])

Sean Fitzpatrick  
Press Secretary  
Congresswoman Lynn Jenkins (KS-02)  
1122 Longworth House Office Building  
Washington, DC 20515  
202-225-6601  
[Sean.Fitzpatrick@mail.house.gov](mailto:Sean.Fitzpatrick@mail.house.gov) <<mailto:Sean.Fitzpatrick@mail.house.gov>>

Visit Congresswoman Jenkins' website at [www.lynnjenkins.house.gov](http://www.lynnjenkins.house.gov)  
<<http://www.lynnjenkins.house.gov/>> to sign up to receive e-mail updates.  
FaceBook <<http://www.facebook.com/pages/Lynn-Jenkins/6974973662>> Twitter  
<<http://twitter.com/replynnjenkins>> Youtube <<http://www.youtube.com/RepLynnJenkins>>

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[REDACTED] NWO

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**Cc:** [REDACTED]  
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Commander, Kansas City District  
U.S. Army Corps of Engineers

[REDACTED]  
[REDACTED]  
<http://www.nwk.usace.army.mil/>

-----Original Message-----

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**Sent:** Wednesday, June 15, 2011 9:40 AM  
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**Cc:** [REDACTED]  
**Subject:** FW: Kansas Officials to Hold Telephone Town Hall for Kansans in Missouri River Flood Zone (UNCLASSIFIED)

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Beth Freeman, Regional Administrator of FEMA District VII Dean Ownby, NFIP Branch Chief Col.

Anthony Hoffman, USACE District Engineer of the Kansas City District Jud Kneuen, USACE Chief of Emergency Management of the Kansas City District Jody Farhat, USACE Reservoir Control Center Various other state agencies and officials

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Visit Congresswoman Jenkins' website at [www.lynnjenkins.house.gov](http://www.lynnjenkins.house.gov)  
<<http://www.lynnjenkins.house.gov/>> to sign up to receive e-mail updates.  
FaceBook <<http://www.facebook.com/pages/Lynn-Jenkins/6974973662>> Twitter  
<<http://twitter.com/replynnjenkins>> Youtube <<http://www.youtube.com/RepLynnJenkins>>

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 9:39 AM  
**To:** [REDACTED];  
[REDACTED] NINO; Farhat, Jody S NWD02; [REDACTED];  
[REDACTED] NINO; Schoenke,  
[REDACTED] NWO; Tabata, [REDACTED] Warden, Robert L NINO

Classification: UNCLASSIFIED  
Caveats: FOUO

Attached are today's notes, along with the current 3-week forecast...

\_\_\_\_\_

Classification: UNCLASSIFIED  
Caveats: FOUO



**Garrison Flood Fight  
Daily Staff Notes  
Wednesday, June 15, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.65. Yesterday's elevation: 1853.45
  - Current Tail water Elevation 1683.35. Yesterday's elevation 1684.15
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1687.0
  - Estimated Inflows 190,000 cfs, Releases: 140,000 cfs
  - Release Schedule: Remain at 140,000 cfs today. Increase to 145,000 cfs on Thursday and 150,000 cfs on Friday June 17th.
  - Spillway gates #'s 1-4 and 25-28 are open one foot. Gate #'s 5-24 are open approximately 2 feet.
  - Current release distribution: Power Plant - 30,000 cfs, Regulating Tunnels - 52,000 cfs, Spillway - 58,000 cfs.
  - We are currently making shifts in our releases, as we provide load control for WAPA. Changes are being made at 0800 and 2000 hours. Last evening we shifted the releases over to the spillway due to a slide in our tailrace rip-rap.
- Fort Peck releases 65,000 cfs scheduled to remain at that level until June 19th before going back down to 60,000 cfs.
- Missouri River Elevations:
  - Bismarck gage: Currently 18.39 feet, Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: Currently 29.7 feet, forecasted remain at 29.7 into tomorrow, the very slowly recede. Previous record stage: 28.0 feet.
- Current Snowpack: Snow pack data not updated for today...
  - Ft Peck - crested at 136% of normal peak; currently 73% of the normal peak remains.
  - Garrison - crested at 141% of peak; currently 82% of the normal peak remains.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED])
  - Lead Dam Safety Engineer will be changing out today. [REDACTED] (Cell #: [REDACTED]), will be arriving later this afternoon. Ross and Laila will be headed home. Thanks for your hard work and support!
  - Kevin Adams will also be arriving today to help assess hydraulic flows and concerns with changing release patterns.
- Instrumentation (Team Leader [REDACTED]; cell: ([REDACTED]))
  - Nothing new reported. Instrumentation readings were difficult yesterday due to the persistent rain and occasional lightening.

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:

- No new issues, plan to assess the embankment later this week...
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

#### **Williston Levee:**

- POC's [REDACTED], cell: (701) 226-2012 [REDACTED]
- Inspection teams found an additional 5 pin boils yesterday.
- Some relief wells are now flowing up to 200 gpm.
- Mr. Keller informed me that a children's home was evacuated yesterday at the request of one City councilman. He also said that the hospital called to inquire about evacuations. Neither of these facilities is located within the inundation areas on our maps. We are not clear why the city is making these decisions?
- Governor, TAG, and Mark Clark (USACE Liaison) met with City Officials yesterday. Mark Clark's summary of the meeting and City requests was sent to Omaha for response.
- Contractor hired to improve the toe road having difficulty performing. CD sending someone to assist.

#### **Natural Resources:**

- POC's [REDACTED], cell: (701) 226-2012 [REDACTED]
- Law enforcement contract with Mercer County is now in place. Still working to get a contractor for traffic control and parking on weekends.
- Mike Key and Brent Cossette, from the District Office, are scheduled to arrive at Garrison this Friday to assist and provide our personnel some reprieve. The assistance is much appreciated!

#### **Outside Maintenance:**

- Will resume regrading and adding material to the West Spillway overlook. The rain delayed this work yesterday.
- Installed lathe along the downstream campground so we can monitor progression on our bank erosion.
- Will coordinate adding rock to the lower end of the tailrace riprap on both East and West banks, as the current and fluctuating tailrace elevations are back cutting the riprap. Current conditions will not allow access on the East bank as it is too muddy. Work will be pursued as soon as conditions permit.
- Will add material to improve access up the West spillway road.
- Temporary water line: If a leak is noted, notify your supervisor, Chuck Phelps, or I ASAP. Also notify City of Riverdale, "Clay" at (701) 471-6433 or Charles Sorensen ext. 232, or home [REDACTED]. Shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.

#### **Power Plant:**

- Going back to four units generating today and backing off again this evening to meet WAPA needs. Changes being made at 8:00 am and 8:00 pm. Changes will be made between the power plant and regulating tunnels. A 15,000 cfs swing each time.
- Drawings for monitoring and/or automation of the regulating tunnel gates have been sent to Omaha for review/concurrence and to ensure compliance with EC 1110-2-6071, which restricts remote operations for water control features that pose life safety risk. Concerns remain that automation will further exacerbate the desire to operate these gates frequently as part of power control for WAPA. I still want an Engineering opinion regarding whether these gates are designed for such use?
- Working with manufacturer to resolve some programming issues on the camera at the spillway.
- Dakota Fence to be onsite today to assess issues with the gate operator on our main gate.

#### **Weather/Safety:**

Today for Riverdale: Partly cloudy. High 73F. Winds WNW at 15 to 25 mph. Chance of rain 20%.	Tonight for Riverdale: A few isolated thunderstorms developing overnight. Low 52F. Winds SW at 5 to 10 mph. Chance of rain 30%.	Tomorrow: Partly cloudy. High around 75F. Winds ESE at 5 to 10 mph. Chance of rain 20%.
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- Mike Morris and Charles Sorensen have volunteered to work on evacuation plans. I still need to coordinate with them on development of these plans.

#### **Needed Resources:**

- Pursuing printing of overview maps to be utilized for dam safety surveillance. Printing will be done in Omaha and Fed-exed to the project.
- NR's placed an order for new life jackets.
- Currently working with ACE-IT and looking into upgrading our radios so that we can utilize them effectively for local communication. Cell phone coverage is spotty in several locations.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED] (cell: [REDACTED] / Home: [REDACTED]).

#### **OPM Notes:**

- I will be on leave after Thursday morning's meeting. I will return to ND on Sunday. [REDACTED] will be Acting OPM. His cell number is [REDACTED].
- I need everyone to be watching for large trees/debris that is headed for our spillway. If large debris is noted, Outside Maintenance should be notified ASAP so they can launch a boat and remove the debris. Also need the power plant to walk the spillway gates daily to check for debris caught under the gates. If a large tree is noted, [REDACTED] or I should be notified to determine corrective actions.

- Surveyors will be out surveying the crest road for the Highway 200 replacement project, currently scheduled for next year. We will be meeting with the design engineers on June 20<sup>th</sup> to discuss proposed changes to the approaches at each end of the crest road. Dam safety engineers will participate in the meeting.
- Many folks are working long hours and/or late shifts. Please watch out for each other and ensure that safety procedures are followed!

This regulation forecast was made using computed reservoir inflows based on 5-days of forecast precipitation and mountain snowmelt runoff. The regulation forecast is subject to change daily as actual events occur.

\* Indicates release changes from previous forecast

		REGULATION FORECAST 06/14/11															
		FTPK				GARR				OAHE				BEND			
		24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE
		24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE
14	T	2252.3	83.0	65.0	5.14	1853.6	185.4	140.0	9.25	1618.5	152.1	150.0	13.88	1419.9	150.0	150.0	8.58
15	W	2252.3	75.0	65.0	5.14	1853.8	184.9	140.0	9.26	1618.5	156.2	150.0	13.89	1419.9	150.0	150.0	8.55
16	T	2252.4	68.0	65.0	5.14	1854.0	185.4	145.0	9.27	1618.6	163.9	150.0	13.89	1419.9	150.0	150.0	8.54
17	F	2252.3	63.0	65.0	5.14	1854.2	177.9	150.0	9.28	1618.7	170.6	150.0	13.90	1419.9	150.0	150.0	8.52
18		2252.3	59.0	65.0	5.14	1854.3	174.0	150.0	9.29	1618.9	178.4	150.0	13.91	1419.9	150.0	150.0	8.51
19		2252.2	56.0	65.0	5.14	1854.4	170.0	150.0	9.29	1619.0	182.8	150.0	13.92	1419.9	150.0	150.0	8.49
20	M	2252.2	54.0	60.0	5.13	1854.5	166.0	150.0	9.30	1619.2	175.0	150.0	13.93	1419.9	150.0	150.0	8.48
21	T	2252.1	51.0	60.0	5.13	1854.5	162.8	150.0	9.30	1619.3	170.0	150.0	13.94	1419.9	150.0	150.0	8.46
22	W	2252.0	49.0	60.0	5.13	1854.6	158.6	150.0	9.30	1619.3	165.0	150.0	13.95	1419.9	150.0	150.0	8.45
23	T	2251.9	50.0	60.0	5.13	1854.6	153.8	150.0	9.30	1619.4	163.0	150.0	13.95	1419.9	150.0	150.0	8.44
24	F	2251.9	53.0	60.0	5.13	1854.6	149.6	150.0	9.30	1619.5	161.0	150.0	13.95	1419.9	150.0	150.0	8.42
25		2251.8	56.0	60.0	5.13	1854.6	155.0	150.0	9.30	1619.5	160.0	150.0	13.96	1419.9	150.0	150.0	8.41
26		2251.8	59.0	60.0	5.13	1854.6	158.0	150.0	9.31	1619.6	159.0	150.0	13.96	1419.9	150.0	150.0	8.40
27	M	2251.8	63.0	60.0	5.13	1854.7	161.0	150.0	9.31	1619.6	158.0	150.0	13.96	1419.9	150.0	150.0	8.38
28	T	2251.9	67.0	60.0	5.13	1854.8	167.0	150.0	9.31	1619.7	157.5	150.0	13.97	1419.9	150.0	150.0	8.37
29	W	2252.0	74.0	60.0	5.13	1854.9	171.0	150.0	9.32	1619.7	156.5	150.0	13.97	1419.9	150.0	150.0	8.36
30	T	2252.1	74.0	60.0	5.13	1855.0	177.0	150.0	9.33	1619.7	155.0	150.0	13.97	1419.9	150.0	150.0	8.35
1	F	2252.2	72.0	60.0	5.13	1855.2	175.0	150.0	9.33	1619.7	154.0	150.0	13.97	1419.9	150.0	150.0	8.34
2		2252.3	70.0	60.0	5.14	1855.3	173.0	150.0	9.34	1619.7	153.0	150.0	13.97	1419.9	150.0	150.0	8.33
3		2252.3	65.0	60.0	5.14	1855.4	172.0	150.0	9.34	1619.7	152.0	150.0	13.97	1419.9	150.0	150.0	8.32
4	M	2252.3	60.0	60.0	5.14	1855.5	171.0	150.0	9.35	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.31
5	T	2252.3	59.0	60.0	5.14	1855.6	170.0	150.0	9.35	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.30
6	W	2252.2	54.0	60.0	5.13	1855.6	169.0	150.0	9.36	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.29
7	T	2252.1	50.0	60.0	5.13	1855.7	166.0	150.0	9.36	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.29
8	F	2252.0	49.0	60.0	5.13	1855.8	164.0	150.0	9.36	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.28
9		2251.9	49.0	60.0	5.13	1855.8	162.0	150.0	9.37	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.27
10		2251.8	48.0	60.0	5.13	1855.9	160.0	150.0	9.37	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.27
11	M	2251.7	47.0	60.0	5.12	1855.9	158.0	150.0	9.37	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.26
12	T	2251.6	46.0	60.0	5.12	1855.9	156.0	150.0	9.37	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.25
13	W	2251.4	45.0	60.0	5.12	1855.9	154.0	150.0	9.37	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.25
14	T	2251.3	44.0	60.0	5.11	1855.9	152.0	150.0	9.37	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.24
15	F	2251.1	38.0	60.0	5.11	1855.9	150.0	150.0	9.37	1619.7	151.5	150.0	13.97	1419.9	150.0	150.0	8.23

#### Project:

24EL Midnight Elevation (feet above mean sea level)  
 24ID Daily Average Inflow (kcfs)  
 24OD Daily Average Release (kcfs)  
 24GE Daily Power Generation (MWh)

#### System:

GE Daily Power Generation (MWh)  
 SG Midnight Storage (AF)  
 DSG Daily Storage Change (AF)

#### Units:

kcfs thousand cubic feet per second  
 MWh megawatt hour  
 AF acre-feet

Pagemaster: Water Management; CENWD-PDR;

Internet E-Mail Address: [Missouri.Water.Management@nwd02.usace.army.mil](mailto:Missouri.Water.Management@nwd02.usace.army.mil)

**NWO**

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**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 9:23 AM  
**To:** 'Kevin Low'; Cruse, Lester External Stakeholder; [REDACTED]  
**Cc:** 'Tom Gurss'; [REDACTED]; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED]  
**Subject:** MRBWM FUI Forecast - External Website (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Kevin, Lester, and [REDACTED]

For the last couple days I've indicated on our various teleconferences that our office would stop posting our 14-day FUI Missouri River flow and stage forecast to the external website once we've reached a release of 150,000 cfs from Gavins Point Dam.

We've decided to delay that change (posting the flow and stage forecast) until at least Monday, June 20th. We will reassess the situation on Monday, June 20th.

Just to be clear ... we did increase releases to 150,000 cfs at Gavins yesterday and our current plan still shows us maintaining that release well into August.

The reason for the delay to stop posting the forecast results is because Kansas City District is, with full approval from our office, evacuating water from their projects' flood control zones before the sustained release of 150,000 cfs reaches their part of the basin. This will allow them more flexibility to store water in the projects during the next couple months when Gavins Point releases will be 150,000 cfs.

Please feel free to contact me if you have any questions.

[REDACTED]  
[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

I got my 1 minute with the Water Management Team on your suggestion. Not sure of the final outcome, but they understand what you suggested and thank you for the thought.

I saw a photo along the Big Soo Terminal. The River is very high.

[REDACTED]

From: Doug [mailto:doug@tegracorp.com]

Sent: Monday, June 13, 2011 4:25 PM

To: [REDACTED]

Subject: Doug Palmer - suggestion for June 12 powerpoint

[REDACTED]

This is in the category of unsolicited opinions....

I ran across the new powerpoint (June 12) showing why the Corps is releasing the water. The presentation is great, but it doesn't give much historical context of runoff. I have attached a page from one of your other presentations that I would suggest adding to improve people's understanding of how much water you are dealing with.

I'm sure you guys are starting to catch some heat. Up here in Sioux City, the initial shock is over and now people are beginning to ask "why is this happening and who is to blame". That new presentation will go a long way toward helping understand exactly what is going on.

Doug

---

Doug Palmer

[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 8:47 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: Doug Palmer - suggestion for June 12 powerpoint (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

More help

**From:** Doug [<mailto:doug@tegracorp.com>]  
**Sent:** Tuesday, June 14, 2011 3:23 PM  
**To:** [REDACTED]  
**Subject:** RE: Doug Palmer - suggestion for June 12 powerpoint (UNCLASSIFIED)

Thanks John.

In the shower this morning, I remembered that the AOP book or spring AOP presentation used to have a bar graph showing each year's runoff with a horizontal dotted line for average. I think the drought years were one color and the high years were another color...that would be a perfect addition to show the dramatic increase in the last couple years from the drought to the current biblical surplus.

[REDACTED]

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Doug Palmer

Tegra Corporation - 2651 Murray St - PO Box 3809 - Sioux City, IA 51102

P: 712-258-6596 - F: 712-258-6590 - C: 712-253-0026 - E: [doug@tegracorp.com](mailto:doug@tegracorp.com)

**From:** [REDACTED]  
**Sent:** Tuesday, June 14, 2011 11:39 AM  
**To:** Doug  
**Subject:** RE: Doug Palmer - suggestion for June 12 powerpoint (UNCLASSIFIED)



Tegra Corporation - 2651 Murray St - PO Box 3809 - Sioux City, IA 51102

P: 712-258-6596 - F: 712-258-6590 - C: 712-253-0026 - E: [doug@tegracorp.com](mailto:doug@tegracorp.com)

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 8:33 AM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
**Cc:** [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
**Subject:** RE: WM Talking Points for 14 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 14 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

These are yesterday's talking point which I forgot to send out.

# Thanks

-----Original Message-----

[illegible]

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Sunday, June 12, 2011 3:55 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED]  
NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED]  
[REDACTED] K NWD; [REDACTED] NWD; [REDACTED] NWD; Farmer, Monique  
[REDACTED] NWD; Johnston, D. [REDACTED] NWD; [REDACTED] NWD;  
Bladinsky, Susan NWD; Bono, Laila M NWD02; Love, Raymond E MA7 NWD; Lindquist, David J NWD;  
K [REDACTED] M SAW  
Cc: G [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD;  
[REDACTED] NWD02; Latka, D. [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD;  
[REDACTED] NWD

Subject: RE: WM Talking Points for 12 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**14 June 2011**

We posted the updated reservoir forecast to the web this afternoon. The only adjustment once again was in releases was at Fort Randall where we are holding releases a little lower than planned to manage the Gavins Point pool level.

We will continue to make these small intrasystem adjustments throughout the summer to best balance the reservoir levels and releases. The anticipated peak releases remain the same: 65,000 cfs at Fort Peck, and 150,000 cfs at the lower 5 dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases were increase to 65,000 cfs today and will be held at that level.
- Garrison –140,000 cfs today, holding that level on Wednesday, increasing to 145,000 cfs on Thursday and reaching the peak release of 150,000 cfs on Friday.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs by the end of the week.
- Gavins Point – reached the peak release of 150,000 cfs today.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 73%

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 82%

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 60%

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 59%

[REDACTED] NWO

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**From:** [REDACTED]  
**Sent:** Wednesday, June 15, 2011 7:55 AM  
**To:** [REDACTED]; Farhat, Jody S NWD02; G [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FW: I-29 & I-680 flooded (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

This is I-29 looking South at the I-29/680 interchange. So looking at the picture, to your left is Crescent, IA and to your right is the Morman Bridge, there is no road to the bridge anylonger. You can see the airport runway in the very top of the picture. You can see that I-29 is underwater north of the interchange.

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Classification: UNCLASSIFIED  
Caveats: NONE



**NWO**

**From:** [REDACTED] NWO  
**Sent:** Tuesday, June 14, 2011 7:18 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Flood Report #90 (UNCLASSIFIED)  
**Attachments:** NWO Flood Fight Materials 13 Jun.xlsx; Missouri River Basin Water Management Situation Report 6-14-11.docx; ObservedPrecip\_13Jun2011.jpg; Day1QPF\_14Jun2011.gif; Day2QPF\_14Jun2011.gif; Day3QPF\_14Jun2011.gif; tempoutlook14\_june.xls; 6\_14 above normal precipitation reports.xls; DailyBulletin\_14Jun2011.pdf; MainStemBulletin\_14Jun2011.pdf; MR\_Levee\_Freeboard\_061411.pdf; Hamburg\_BreachJune14.pdf; Corp of Eng. 6-14-11 084.jpg; Hamburg\_BreachJune14.pdf

Classification: UNCLASSIFIED  
Caveats: FOUO

**\*\*EMERGENCY OPERATIONS\*\***

**1. Situation:**

Over the past 24 hours, widespread light precipitation, with embedded areas of heavy rain, occurred from eastern MT to western ND with amounts averaging 0.1 to 0.25" and isolated areas receiving 1.0", although more could fall later today. A thunderstorm complex developed in southwest NE, and moved across the northern part of the state and into southeast SD overnight. Rainfall averaged 0.1 to 0.5" in this region with isolated spots receiving 2-3". Thunderstorms Monday morning produced rain between Sioux City and Omaha which averaged 0.1 to 0.25", with a few storms producing over an inch.

Temperatures will remain cool over the northern Rockies continuing to delay snowmelt.

Wind continues to be an item of note in eastern Montana, North Dakota and South Dakota. The wind forecasts are as follows:

Fort Peck: West northwest winds 15-20 mph with gusts to 25-30 mph today, becoming west overnight and decreasing to 5-10 mph Wednesday morning. Wednesday afternoon west winds increasing to 15-20 mph with gusts up to 20 mph.

Williston: Northwest winds 15 to 20 mph, decreasing to light winds overnight and becoming 15 to 20 mph northwest Wednesday afternoon.

Garrison: Light southwest winds today becoming northwest 10-15 mph tonight. Winds 15 to 20 mph northwest, with gusts up to 25 mph, Wednesday afternoon.

Oahe: Light out of the southeast becoming northwest 10-15 mph this afternoon. Northwest winds increasing to 15-20 mph Wednesday afternoon.

**Iowa/Missouri:**

Hamburg, IA - Over the past 24 hrs in response to the recent breach in the vicinity of Hamburg IA the following material was sent out of the Omaha District; 8 flatbed trucks and 1 GOV Truck delivered 70 Rolls of Poly; 26,000 sandbags; 16,000 LF of HESCO; 2 12" Pumps each w/ 100ft hose.

The levee sponsor cut a notch in the southern portion of the L575 levee to relieve pressure and slow down the flow rate heading toward the city of Hamburg. All five segments and the access closure (1-road & 2-RR) are progressing at a fast pace and should be complete by 15 June to elevation 919.

**Montana:**

Ft. Peck Dam, MT - 24-hour surveillance continues on the dam and the spillway. Project staff, with assistance from Western Area Power Administration were to begin installing a temporary

overhead line to restore primary power to the spillway. Work has been delayed due to parts needed for the power line. Backup generators are being used to make gate changes in the interim.

A structural engineer was on site Tuesday to evaluate the lower end of the spillway section. There are no problems noted but want an additional opinion. The turbulence next to the wall seems to have decreased and project teams are keeping a close eye on the area. No other Significant Dam Safety Issues reported.

#### North Dakota:

Williston, ND - The State of North Dakota has requested technical and direct assistance for the City of Williston for guidance on flood fighting techniques, emergency construction methods, and inspection of existing flood protection projects including hydraulic and hydrologic analysis. Assistance is also being requested for direct flood fighting, flood fight emergency resources and emergency contracting if necessary.

Garrison Dam, ND - Embankment No additional signs of distress noted. Pavement markings in the area of suspected movement appear to be stationary. Tilt plate readings are within their expected range. Inclinerometers do indicate additional displacement; however, the incremental displacement appears to be within the historic annual rate and have not accelerated. No other significant dam safety issues to report.

Snake Creek Embankment - Weekly inspections have initiated.

#### South Dakota:

The State of South Dakota in Union County, requested technical assistance on June 14 for the Dakota Dunes and Wynstone areas. Additional areas within the county may also need technical assistance.

Oahe Dam - Observed ongoing soil erosion along the outer walls of the outlet works stilling basin. A structural engineer was on site 12 June evaluating potential structural stability concerns if the erosion continues. The findings were that the erosion is not detrimental to the stability of the wall. No additional significant dam safety issues.

Big Bend Dam, SD and Gavins Point Dam, SD - No significant dam safety issues

Fort Randall Dam, SD - Ft. Randall is now seeing water spouting out the piezometer holes and slab joints, on the east wall slab as was seen on the west. The slabs have not collapsed, but it is expected that the slab are being undermined. The project is shutting down the spillway and moving flow to outlet works for the time being. No other significant dam safety issues to report

## 2. Weather:

### 2.a. Future Precipitation:

Unsettled weather is expected to continue across much of the northern half of the basin for several days as a series of weather disturbances move out of the eastern Pacific. There continues to be high confidence that precipitation will continue through the weekend and early into next week across eastern Montana and the western Dakotas.

Thunderstorms across North Dakota today will move east and southeast this evening. These will drop locally heavy amounts across west central North Dakota this afternoon with some isolated pockets of 1-2".

A fairly dry period is anticipated for Wednesday but will be short-lived as yet another strong weather system moves out of the Rockies and into the plains Thursday and Friday. Rich Gulf moisture remains over the central plains states and as the incoming weather systems approach, areas of heavy precipitation are possible.



The Day 1 QPF (from 700 hours Tuesday to 700 hours Wednesday):

The heaviest precipitation should fall over ND where much of the state could receive between 0.25 and 0.75" of rain. Further south, rain totals over SD could average 0.25", while Nebraska rain totals may average between a trace and 0.25". As with any thunderstorms, locally higher rain amounts will occur with the stronger storms.

The Day 2 QPF (from 700 hours Wednesday to 700 hours Thursday):

This period remains mostly dry across the basin as high pressure moves in.

The Day 3 QPF (from 700 hours Thursday to 700 hours Friday):

Showers move into the Dakotas on Thursday evening and strengthen across Nebraska and Iowa overnight. A few areas of potentially heavy rainfall are possible across the western Dakotas, eastern South Dakota, northeast Nebraska and western Iowa.

2.b Temperature forecast: Temperatures will remain cool over the northern Rockies which continues to delay snowmelt.

### 3. Hydro Status:

3.a. River (Flood Stage/Current Stage/Forecast/Date of Peak: Peak Stage) Montana

- \* Yellowstone River at Forsyth/10.0/9.93/steady/Jun 18: 10.6'
- \* Yellowstone River at Miles City/13.0/12.62/steady/Jun 19: 13.2'
- \* Yellowstone River at Glendive/53.5/52.03/cresting/Jun 19: 52.2'
- \* Yellowstone River near Sidney/19.0/17.33/cresting/June 13: 17.5'
  
- \* Jefferson River near Three Forks/8.0/9.24/cresting/
  
- \* Gallatin River near Logan/8.0/8.63/steady/Jun 16: 9.4'
  
- \* Big Hole River near Melrose/6.0/6.83/slow recession/Jun 15: 7.3'
  
- \* Missouri River near Toston/10.5/11.49/steady/Jun 16: 11.5'
- \* Missouri River near Ulm/13.5/14.2/receding/
- \* Missouri River near Landusky/25.0/30.68/receding/
- \* Missouri River near Wolf Point/13.0/14.69/steady/
- \* Missouri River near Culbertson/19.0/16.93/rising/Jun 14: 16.9'
  
- \* Milk River at Tampico/25.0/26.81/receding/
- \* Milk River at Nashua/20.0/27.06/receding/

### Wyoming

- \* North Platte River at Saratoga/8.5/9.82/steady/
- \* North Platte River nr Sinclair/9.0/10.49/steady/
  
- \* Laramie River at Laramie/5.0/5.01/slow recession/
- \* Laramie River near Fort Laramie/7.0/4.8/steady/

### North Dakota

- \* Missouri River at Williston/22/29.6/rising/Jun 15: 29.7'
- \* Missouri River at Bismarck/16.0/18.2/rising/Jun 18: 19.0'
  
- \* James River at Jamestown/12.00/10.79(1,580 cfs)/steady/

### South Dakota

- \* Missouri River at Pierre/13.0/18.84/steady/
- \* Missouri River near Greenwood/30.0/37.88/steady/
- \* Missouri River near Gayville/55.0/55.91/steady/

## Nebraska

- \* North Platte River near Mitchell/7.5/9.46/steady/
- \* North Platte River at North Platte/6.0/7.5/steady/
  
- \* Missouri River at Sioux City/30.0/33.72/rising/Jun 16: 33.7'
- \* Missouri River at Decatur/35.0/37.68/rising/Jun 16: 38.0'
- \* Missouri River near Blair/26.5/31.5/steady/Jun 17: 32.0'
- \* Missouri River at Omaha/29.0/32.88/rising/Jun 17: 33.3'
- \* Missouri River at NE City/18.0/25.08/rising/Jun 18: 25.6'
- \* Missouri River at Brownville/33.0/39.58/receding/Jun 19: 41.8'
- \* Missouri River at Rulo/17.0/24.13/receding/Jun 19: 25.5'

Note: Brownville and Rulo gages temporarily receding due to L 575 breach.

### 3.b. Reservoirs:

#### Tributary Reservoirs:

Pipestem Reservoir, (ND) - fell 0.18' to elevation 1484.10 ft-msl. Inflows are near 73 cfs and the release was 496 cfs. 63.5% of the flood pool is occupied.

Jamestown Reservoir, (ND) - rose 0.12' yesterday to elevation 1444.58 ft-msl. Inflows are approximately 1,700 cfs and releases are 1,105 cfs. The combined Jamestown/Pipestem release is 1,600 cfs. 42.8% of the flood pool is occupied.

Heart Butte, (ND) - Reservoir rose 0.89 ft yesterday with 6.6% of its flood control pool occupied. Pactola (SD) dropped 0.38 ft yesterday with 5.1% of the flood pool occupied. Shadehill (SD) fell 0.04 ft yesterday with 2.7% of the flood pool occupied.

Yellowtail, (MT) - rose 0.20 ft to elevation 3634.38 ft-msl with inflows of 16,462 cfs. The release was 15,382 cfs. 89.2% of its multipurpose pool is occupied.

Tiber, (MT) - rose 0.74 ft to elevation 3002.54 ft-msl. Inflows were 9,132 cfs and releases are 1,483 cfs as the USBR stores water to help reduce inflows to Fort Peck. 45.9% of its flood pool is occupied.

Clark Canyon, (MT) - rose 0.40 ft to elevation 5548.42 ft-msl with inflows of 1,347 cfs and releases of 285 cfs as the USBR stores water to help reduce inflows to Fort Peck. 15.2% of its flood control pool is occupied.

Canyon Ferry, (MT) - rose 1.2 ft to elevation 3790.03 ft-msl with inflows of 30,399 cfs and releases of 11,458 cfs as the USBR stores water to help reduce inflows to Fort Peck. 88.0% of its multipurpose pool is occupied.

Glendo, (WY) - rose 0.13 ft to elevation 4638.44 ft-msl with inflows of 8,380 cfs and releases of 7,399 cfs. 16.0% of its flood control pool is occupied.

Missouri River Mainstem Reservoirs: (Water Management SITREP is attached) Following is a link to the Mainstem regulation forecast. Refresh to obtain the most recent copy if you keep this link open.

<http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

#### Fort Peck Dam (MT)

6/13 Pool Elev: 2252.1 ft-msl

24-hr change: 0.2'

6/13 Ave Inflow: 86,000 cfs

6/13 Ave Release: 65,400 cfs  
6/14 Scheduled Release: 65,000 cfs

Garrison Dam (ND)

6/13 Pool Elev: 1853.4 ft-msl  
24-hr change: 0.0'  
6/13 Ave Inflow: 190,000 cfs  
6/13 Ave Release: 138,700 cfs  
6/14 Scheduled Release: 140,000 cfs

Oahe Dam (SD)

6/13 Pool Elev: 1618.6 ft-msl  
24-hr change: 0.3'  
6/13 Ave Inflow: 145,000 cfs  
6/13 Ave Release: 150,400 cfs  
6/14 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/13 Pool Elev: 1419.9 ft-msl  
24-hr change: -0.2'  
6/13 Ave Inflow: 151,000 cfs  
6/13 Ave Release: 145,900 cfs  
6/14 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/13 Pool Elev: 1363.1 ft-msl  
24-hr change: 0.6'  
6/13 Ave Inflow: 163,000 cfs  
6/13 Ave Release: 139,200 cfs  
6/14 Scheduled Release: 143,000 cfs

Gavins Point Dam (NE-SD)

6/13 Pool Elev: 1207.3 ft-msl  
24-hr change: -0.1'  
6/13 Ave Inflow: 145,000 cfs  
6/13 Ave Release: 144,800 cfs  
6/14 Scheduled Release: 150,000 cfs

4. Emergency Operations:

4.a.1 Nebraska:

North Platte, NE - Airport Levee Raise contract modification issued 14 June. New construction competition is scheduled for June 16, 2011.

Bellevue (Offutt Air Force Base), NE - Technical team onsite to assist AF staff with sandbag and HESCO placement around critical infrastructure locations. Protective measures will be in place by 15 June.

Omaha (City of Omaha), NE - Technical assistance provided to City of Omaha officials regarding levee surveillance, maintenance of temporary measures, rapid response contingency planning, and interior drainage concerns for the Qwest downtown area.

4.a.2 Montana:

Poplar, MT - The work on the temporary levee is substantially complete. The embankment is complete with placement of sandbags along the top of poly on upper slope of levee remaining. The Fort Peck Tribe is performing the work with Joel Ames assisting the Ft. Peck Tribe with their concerns.

#### 4.a.3 North Dakota:

Williston, ND - Crews continue to monitor boil areas and seepage areas along entire levee with increased seepage. Some movement of material is occurring in the area of the sand boil. Project personnel have serious reservations about our Contractor being able to construct an adequate haul road without damaging the levee and are meeting with the Contractor and evaluating progress/damage.

Fort Yates, ND - Standing Rock Sioux Tribe (SRST):

Second contract is approximately 80% complete. The contractor has begun placing the 5,000 tons of riprap on the north side of the causeway.

#### 4.a.4 South Dakota - NSTR

#### 4.a.5 Wyoming - NSTR

#### 4.a.6 Iowa/Missouri

Harrison County: A request for Technical Assistance for levee and interior pumping Mills County: Submitted a request for an additional 12" pump. The only size available at the time was a 16" pump and the sponsor cancelled the request.

Mills and Pottawattamie Missouri River District are requesting emergency assistance and repair for installing a reverse sand filter at station 677+80. Multiple sand boils are forming rapidly in the area. According to the sponsor sandbagging is currently being used to mitigate but the levee area is at risk.

#### 4.a.7 Missouri River Levee Surveillance:

Multiple teams comprised of Omaha District and out-of-District staffs continue to coordinate with local sponsors on any issues/concerns they may have, as well as conduct surveillance on levee conditions. Seepage areas/boils have been observed along the levees. Teams have been providing assistance to Sponsors when seepage areas/boils and other actionable items are observed.

Omaha-Missouri River RB: One-half mile upstream of I-80 overpass two manholes are leaking water. City of Omaha was notified and is working on it Levee system appears to be in relatively good shape, and no boils have been observed on either side of the river. Closure structures are in place; Gate at M2.89 closed but water still flowing on landside of levee from surcharged storm drain, Gate at M3.29 was open with water flowing out on landside. Sponsor was notified, gate was closed and flow stopped. Gate at M12.0 appears to be leaking on landside levee toe. Sponsor notified and they are working on a plug. Levee freeboard was >8'

L624-Mo River & Indian LB & Mosquito Creek RB: Levee system appears to be in relatively good shape. Gates open and water flowing at Mile 6.61 and Mile 7.14 and sponsor is aware and addressing the issues. Levee freeboard on Missouri River was 6'; Levee freeboard on Indian Creek was >8'; Levee freeboard on Mosquito Creek was 6'.

L611/614-MoRiver LB & Upper Pony Creek Ditch LB: Levee system has good maintenance and surveillance. Sponsor is very active and using prison labor to fill rodent holes. Riprap quantities were determined and placement started.

L575-BW, McKissock, Buchanan, Atchison, Hamburg: Landside seepage appears to be increasing. Freeboard at breach is 5.4' The new target elevation on the Hamburg levee is 919. The landside is filling toward the south.

#### L536/550-Turkey Creek:

L536 Levee district is in fair shape. From inundation maps, area would be flooded in several areas even if a levee breached (visually several feet of inundation in the event of a breach.) This should be followed up with GIS.

L550 Levee should be closely monitored, noted a sloughing over a 150' long section on internal drainage ditches adjacent to berm toe. Team also observed damp spots on berm as well as an isolated case of seepage through an animal burrow. A boil field to the north (NWOMR-L550-jmh023) seems similar but there are 100's of boils. Sponsors are aware of these issues.

R573-MO River RB: Levee is in good condition. No new issues. Corps team walked entire levee and observed rodent holes being filled with cement grout.

R562-Peru: All existing boils look stable and flagged rodent holes to be backfilled.

R548- MO River and Little Nemaha: Observed 2 drainage structures that appeared very leaky, essentially an open connection. Observed lateral cracking in landside rut on crest of L.Nemaha right bank up to 1' deep and 1" wide.

#### Levees with NSTR:

L627-MO River LB & Indian Creek RB; L624-627/614/611-Mosquito Creek and Upper Pony Creek; L601-Watkins Ditch RB; L601/594; L594/575-BW,PV,Wauvbonsie; R616/613-MO River RB and Papillion Creek RB; R613-Platte LB and Papillion RB and MO River RB; Lake Waconda; and R520-MO River RB.

#### 4.b Equipment:

##### Sandbags

Issued: 14,277,000

ON Hand: 4,842,500

Projected: 6,500,000

##### HESCO 3 FT

Issued: 8,200 LF

On Hand: 9,000 LF

Projected: 14,000 LF

##### HESCO 4 FT

Issued: 59,070 LF

On Hand: 0 LF

Projected: 30,000 LF

##### Poly Rolls

Issued: 2,666 rolls

On Hand: 2,034 rolls

Projected: 1,500 rolls

##### Pumps

Issued: 44

On Hand: 7

Serviceable: 2

Projected: 25

#### Additional Supplies due in:

Pumps: 5 pumps in maintenance for parts/repair (MRPO tech).

Sling Bags: 300 ea. 2,000 lb heavy bags with slings on-hand HESCO 4 FT: 14,000 LF due in 14/15 June.

HESCO 4 FT: Additional 15,000 LF ordered on 13 June (ETA TBD).

Sandbags: 3.7 million due in 14/15 June.

#### 4.c Funding:

\* Total Code 200 Funding received to date for this event: \$47,662,425

\* Total Code 200 Funding waiting to be received for this event: \$0

- \* Total Code 200 Funding revoked to date for this event: \$2,834,000
- \* Class 219 - Emergency Operations - Direct Assistance - \$250,000 - WAD and FAD received 3/14/2011
- \* Class 219 - Emergency Operations - Direct Assistance - \$3.825M - WAD received 03/15/11. FAD received 03/16/11.
- \* Class 219 - Additional Funds Request on 24 March - \$231,425 - WAD and FAD received 03/24/11.
- \* Class 219 - Emergency Operations - Direct Assistance - \$2.5M revoked - 4/13/11
- \* Class 219 - Emergency Operations - Direct Assistance - \$100k revoked - 4/22/11
- \* Class 210 - Response Operations - Alabama Tornadoes - \$56k - MIPR - 4/30/11 - received \$45k on 4/30/11
- \* Class 210 - Response Operations - Alabama Tornadoes - \$25k - Request and received for EOC Operations and deployments on 4/30/11
- \* Class 210 - Response Operations - Alabama Tornadoes - \$14k revoked - 05/02/2011
- \* Class 210 - Response Operations - Alabama Tornadoes - \$10k revoked - 05/03/2011
- \* Class 200 - Emergency Operations - Response Operations - \$500,000 - WAD and FAD received on 05/25/11
- \* Class 200 - Emergency Operations - Response Operations - \$750,000 - WAD and FAD received on 05/26/11
- \* Class 200 - Emergency Operations - Response Operations - \$5,000,000 - FAD received 05/27/11
- \* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - FAD received 05/27/11
- \* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/27/11 - WAD received for \$2M received on 05/31/11 - verbal received on 06/04/11 for \$1M
- \* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - request sent 05/28/11 - WAD received on received 05/28/11
- \* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/31/11 - WAD received 06/01/11
- \* Class 200 - Emergency Operations - Response Operations - \$6,500,000 - request sent 06/01/11 - WAD for \$3M received 06/02/011 - verbal received on 06/04/11 for \$3.5M
- \* Class 200 - Emergency Operations - Response Operations - \$1,500,000 - request sent 06/03/11 - verbal received 06/03/11
- \* Class 200 - Emergency Operations - Response Operations - \$1,000,000 - request sent 06/03/11 - verbal received 06/03/11 - WAD received 06/06/11
- \* Class 200 - Emergency Operations - Response Operations - \$500,000 - request sent 06/04/11 - verbal received 06/04/11
- \* Class 200 - Emergency Operations - Response Operations - \$2,000,000 - request sent 06/05/11 - verbal received 06/05/11
- \* Class 200 - Emergency Operations - Response Operations - \$400,000 - request sent 06/06/11 - verbal received 06/07/11
- \* Class 200 - Emergency Operations - Response Operations - \$50,000 - received 06/08/11
- \* Class 200 - Emergency Operations - Response Operations - \$980,000 - request sent 06/08/11 - WAD received 06/09/11
- \* Class 200 - Emergency Operations - Response Operations - \$750,000 - request sent 06/09/11 - WAD received 06/10/11
- \* Class 21M - Emergency Operations - Response Operations - \$210k revoke request sent 06/10/11
  
- \* Total Code 500 Funding received to date: \$827,904
- \* Class 520 Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/2/11.
- \* Class 52A Additional Request for Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/10/11.
- \* Class 520 Additional Request for Funding - Advance Measures - Technical assistance - \$101,640. WAD and FAD received on 3/24/11.

- \* Class 519 Funding - Advance Measures - Direct Assistance - \$376,264. WAD and FAD received on 3/28/11.
- \* Class 520 Funding - Advance Measures - Technical assistance - \$110k - FAD received on 05/12/11.
- \* Class 510 Funding - Advance Measures - Direct assistance - \$40k - FAD received on 05/26/11

Daily Labor Burn Rate: \$137,500  
Daily Contract Burn Rate: \$325,000  
Combined Daily Burn Rate: \$462,500

4.d Number of Personnel Supporting EOC Operations:  
Working in field: 48  
Working in District: 50  
Outside District: 1

5.a EOC Activation - Level IV - 24 hour Activation (Shifts: 0700-1930)

[REDACTED]  
Chief, Readiness Branch  
U.S. Army Corps of Engineers - Omaha District  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: FOUO

As of: 120014JUN11

SANDBAGS	3' HESCO	4' HESCO	POLY ROLLS	PUMPS
ISSUED:	14,277,000	8,200 LF	2,666 rolls	44
ON HAND:	4,842,500	9,000 LF	2,034 rolls	2 / 7
PROJECTED REQTS:	6,500,000	14,000 LF	1,500 rolls	25

Serviceable / On Hand

## Notes

1. **Pumps:** 5 pumps in maintenance for parts/repair (MRPO tech).
2. **Slingbags:** 300ea 2,000 lb heavy bags with slings on-hand.
3. **HESCO:** 14,000 LF due in 14/15 June.
4. **HESCO:** Additional 15,000 LF ordered on 13 June (ETA TBD).
5. **Sandbags:** 3.7 million due in 14/15 June.



## Missouri River Basin Water Management Situation Report – 6-14-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Relatively high inflows continue to occur into Fort Peck Reservoir and have increased into Garrison Reservoir from primarily rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/14/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	86.0	65.4	2250	2252.1	0.2
Garrison	190.0	138.7	1854	1853.4	0.0
Oahe	145.0	150.4	1620	1618.6	0.3
Big Bend	151.0	145.9	1423	1419.9	-0.2
Fort Randall	163.0	139.2	1375	1363.1	0.6
Gavins Point	145.0	144.8	1210	1207.3	-0.1

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/14/11)**

Reservoir	Current	Total	Remaining	Exclusive	% Excl Left
	kAF	kAF	kAF	kAF	
Fort Peck	18,985	18,463	-522	971	-54
Garrison	23,572	23,821	249	1,489	17
Oahe	22,580	23,137	557	1,102	51
Big Bend	1,614	1,798	184	60	100
Fort Randall	4,253	5,418	1,165	985	100
Gavins Point	376	450	74	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the release from Fort Peck has been increased to 65 kcfs today and will be held at that level for some of the next week before it is returned to 60 kcfs. Other than that, the releases 1 week out will be at the currently anticipated maximum releases at the other five reservoirs, with Gavins Point joining Oahe and Big Bend at 150 kcfs today. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/14/11)**

Reservoir	Yesterday	Forecast	7 days out	14 days out	Pre-2011
	kcfs	Today	20 June	27 June	Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	65.4	65	60	60	35
Garrison	138.7	140	150	150	65
Oahe	150.4	150	150	150	59
Big Bend	145.9	150	150	150	74
Fort Randall	139.2	143	148	148	67
Gavins Point	144.8	150	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/14/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.1	20-21	mid-Jun
Pierre, SD	13	18.8	18.7	mid-Jun
Sioux City, IA	30	33.3	35-37	mid-Jun thru July
Decatur, NE	35	37.5	40-42	mid-Jun thru July
Omaha, NE	29	32.7	34-36	mid-Jun thru July
Nebraska City, NE	18	24.9	27-28+	mid-Jun thru July
St. Joseph, MO	17	23.2	27-32	mid-Jun thru July
Kansas City, MO	32	24.9	30-39	mid-Jun thru July
Waverly, MO	20	23.7	27-31	mid-Jun thru July
Boonville, MO	21	21.6	27-33	mid-Jun thru July
Hermann, MO	21	21.9	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still 3 to 4 feet below the constructed levee crests.

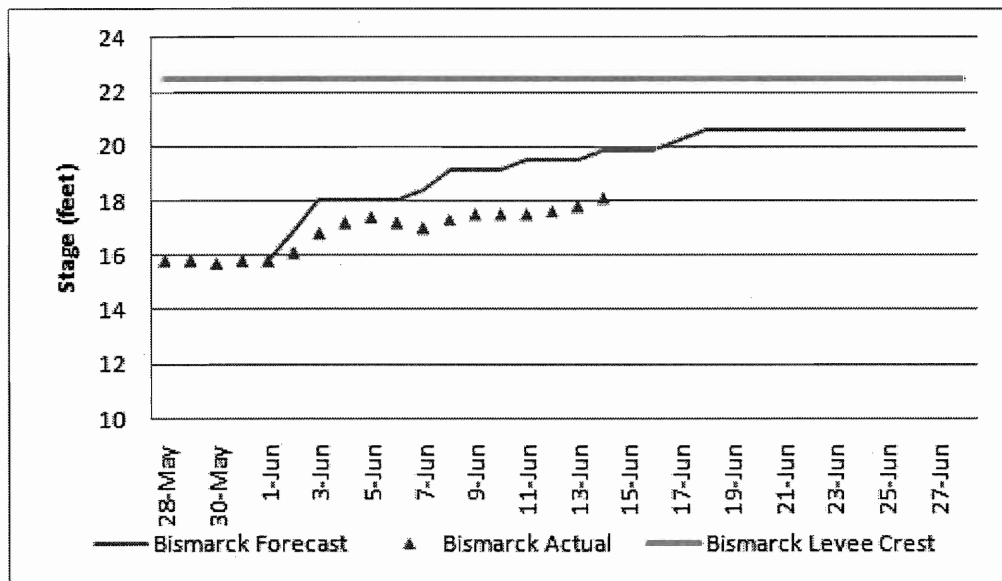


Figure 1. Missouri River stages at Bismarck, North Dakota.

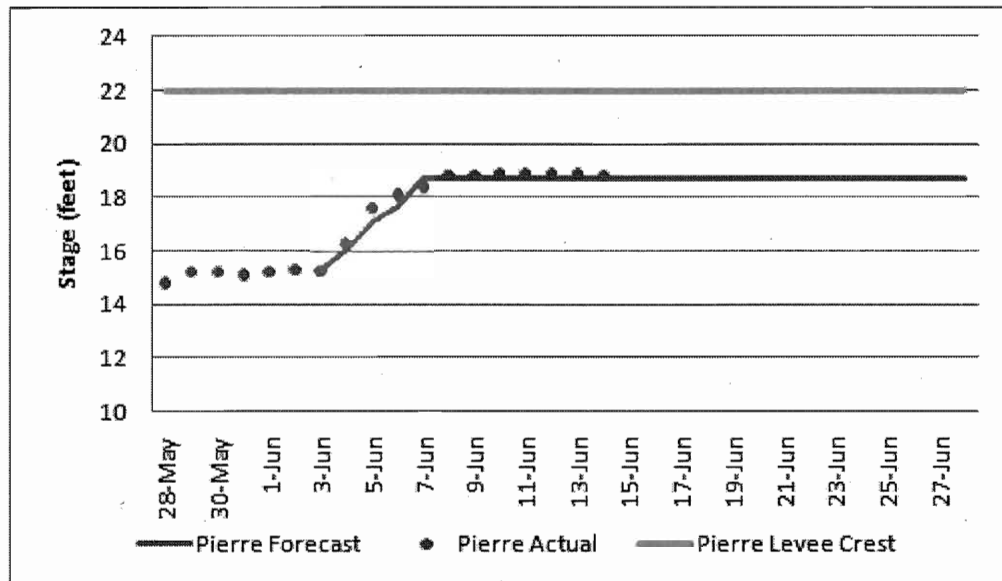


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and in a large area of the lower basin. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

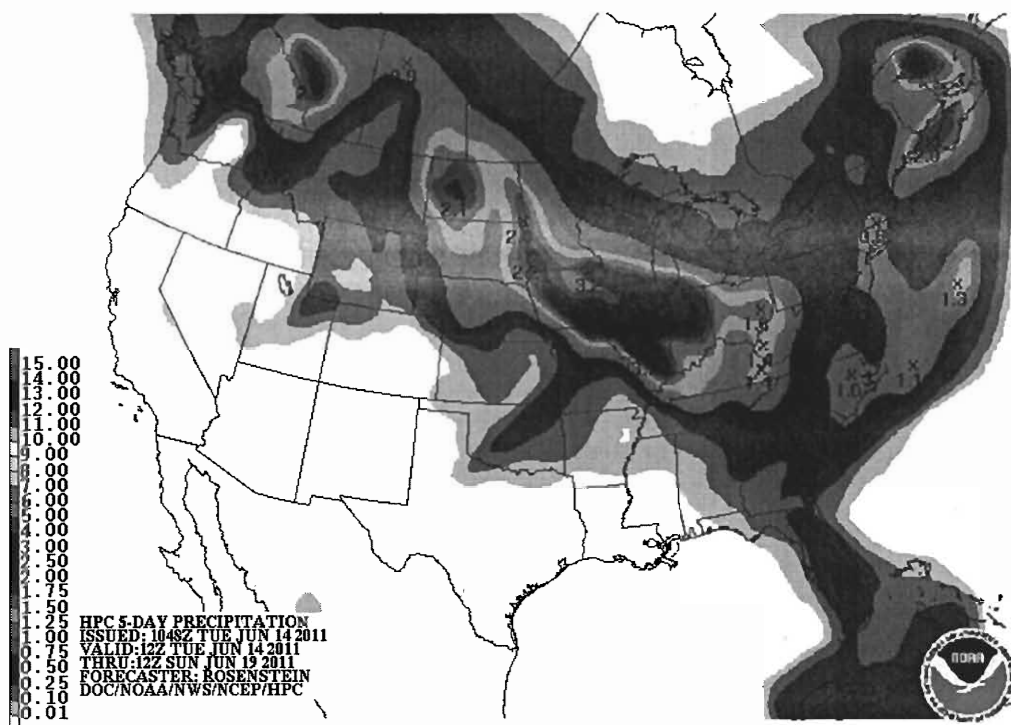


Figure 3. 5-day total QPF ending 0700 Sunday, June 19, 2011.

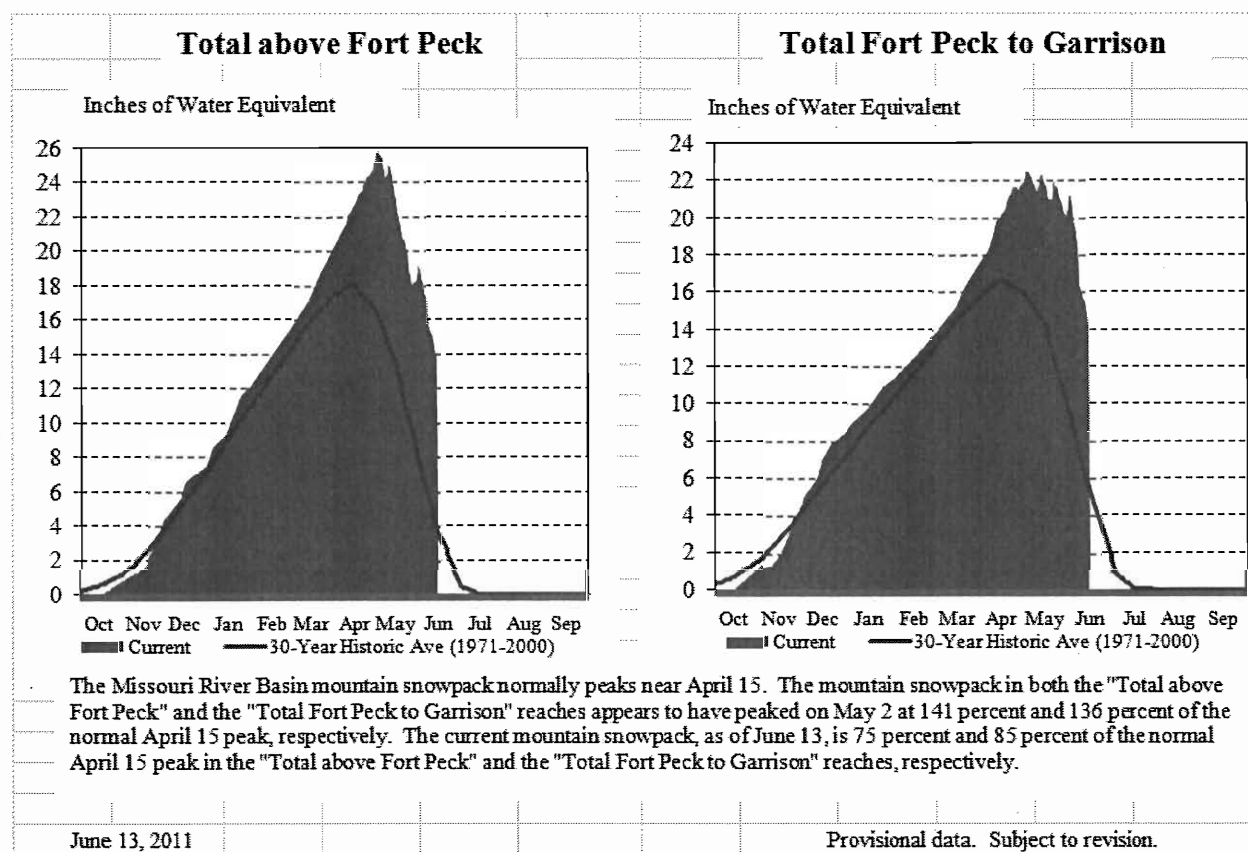


Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 13, 2011.

## Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg, Iowa. A full breach of a 10- to 15-foot section of the L-575 levee occurred June 13 as a result of the fourth slump in the past 2 weeks. The Hamburg levee is currently anticipated to be completed by Friday, June 17. A required closure structure is currently being placed. Also, this failure is expected to result in the closure of Interstate 29, making this major north-south highway closed above and below Omaha, Nebraska. The failure of this levee occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is getting very close to the 2010 maximum (still 0.24 feet below).

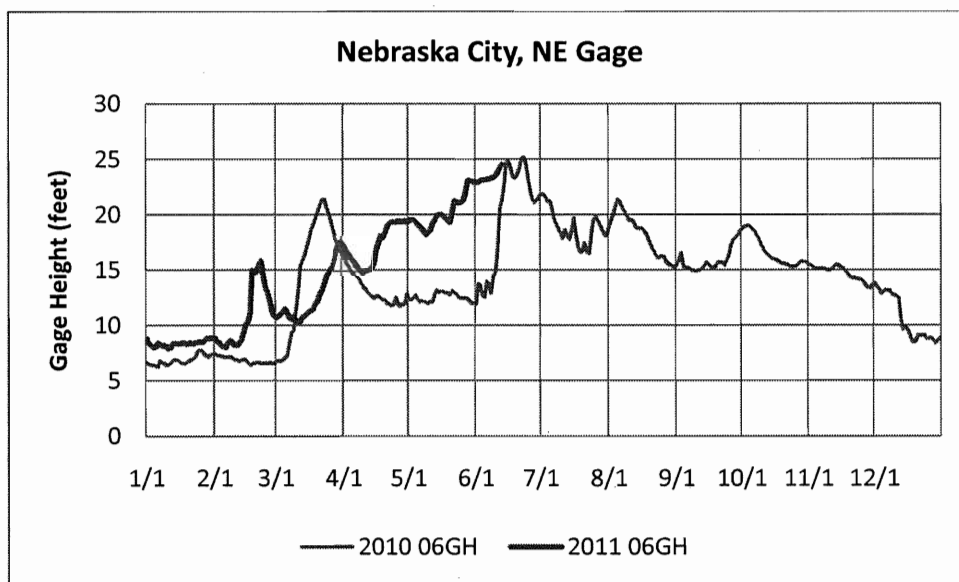


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri yesterday. This location is approximately midway between the gages at Rulo, Nebraska and St. Joseph, Missouri. The gage plots for those two locations look similar to the Nebraska City gage plot, except the maximum 2010 stages are 2.0 and 2.8 feet higher than the current gage heights at Rulo and St. Joseph respectively. Another factor besides only gage height appears to be playing a role in the failure of this levee as well as the levee near Hamburg.

Eastern Montana and northern Nebraska experienced heavy rains yesterday and over night. Runoff from the Montana rainfall will drain primarily into Garrison Reservoir, and runoff from the more northern part of Nebraska will drain primarily into Gavins Point Reservoir with some potentially going

into Fort Randall Reservoir. Figure 6 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

**NWS Central Region: Current 1-Day Observed Precipitation**  
**Valid at 6/14/2011 1200 UTC- Created 6/14/11 13:41 UTC**

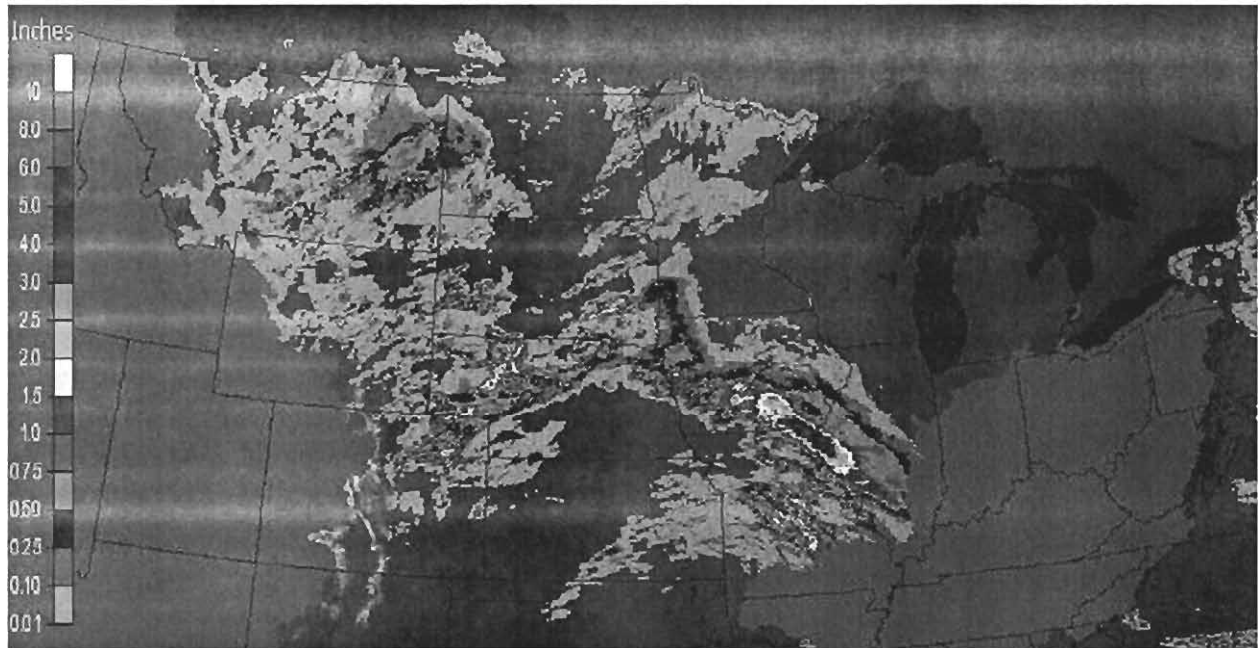


Figure 6. Rainfall on the Central Region of the United States for June 14, 2011.

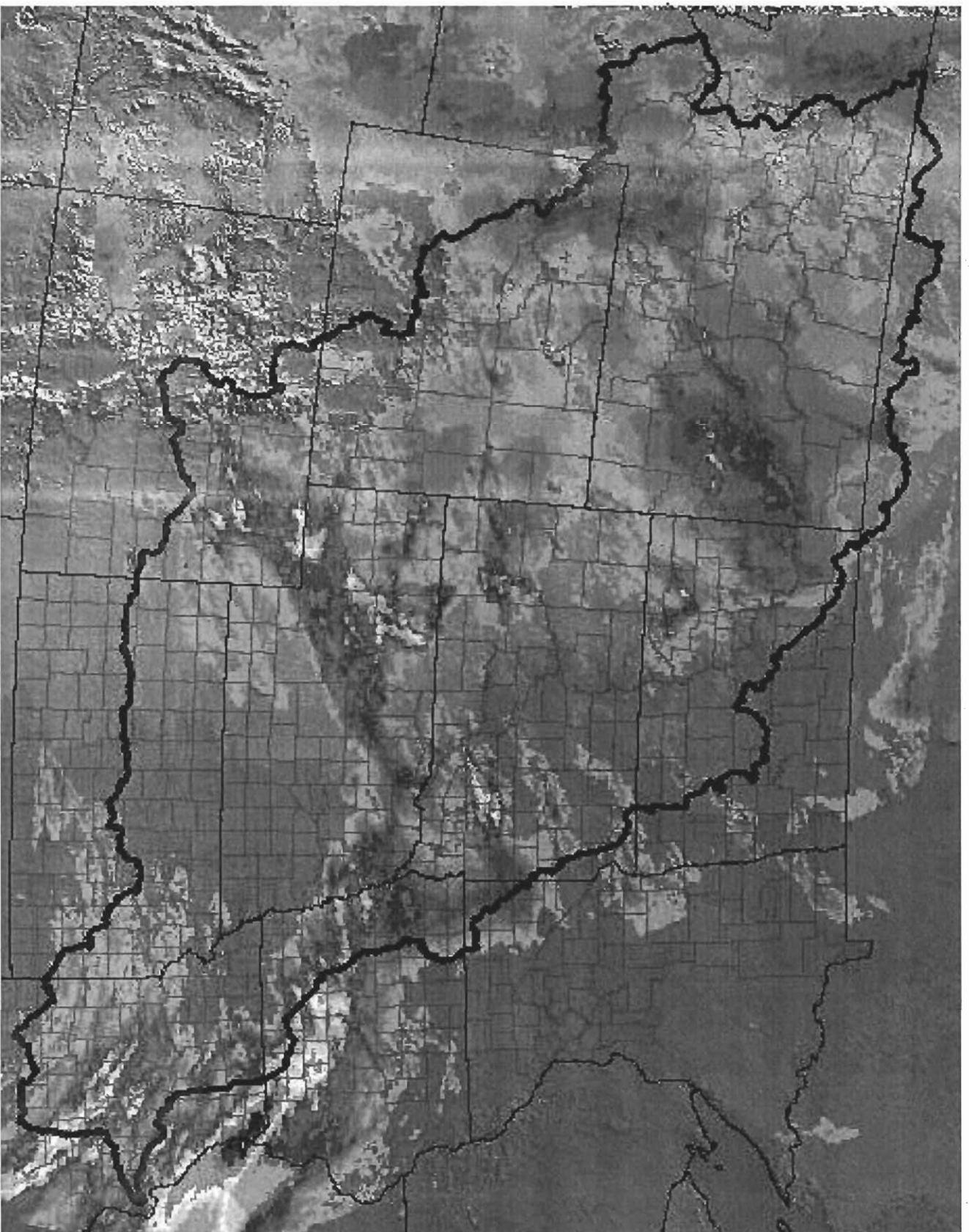
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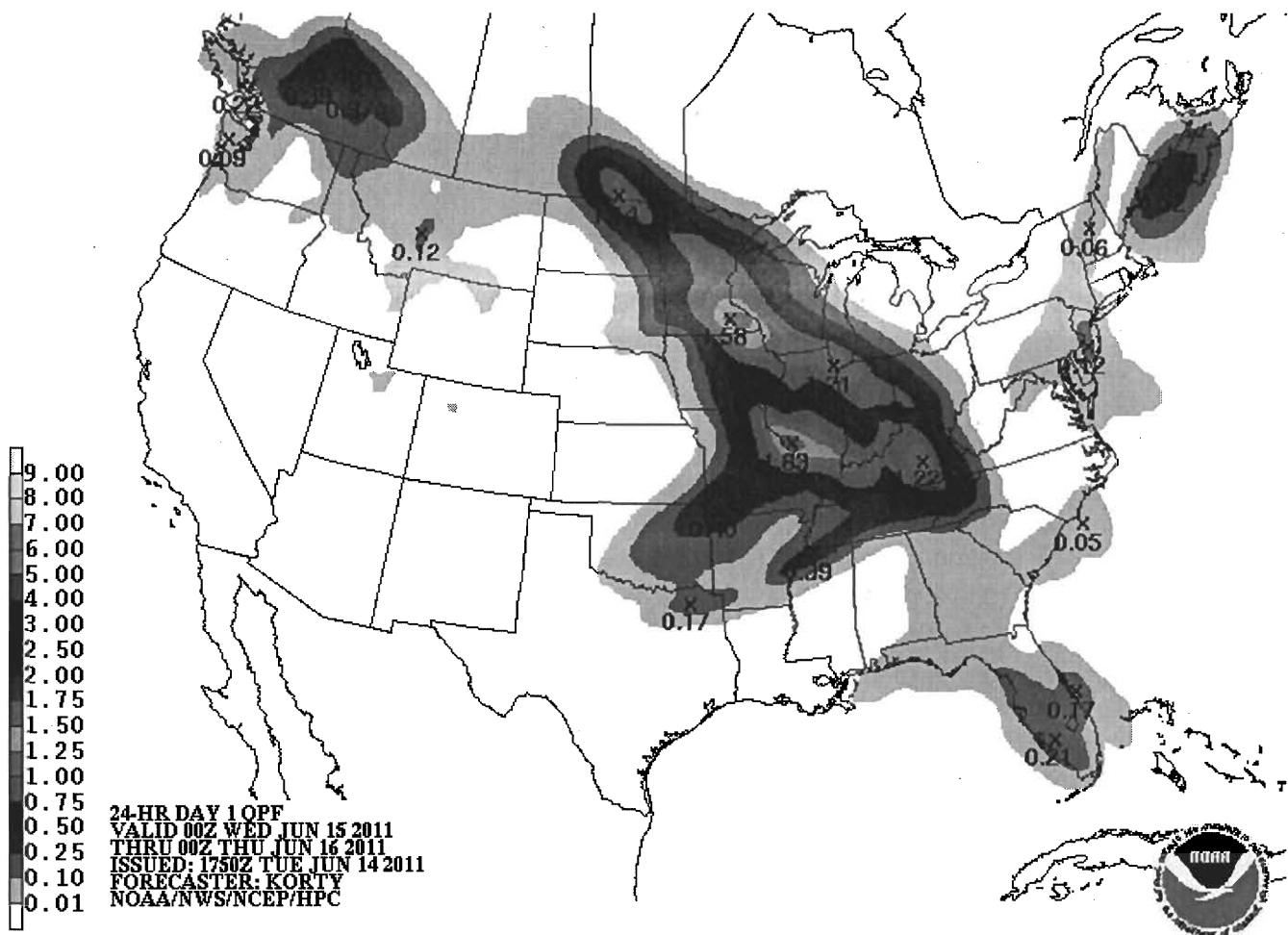


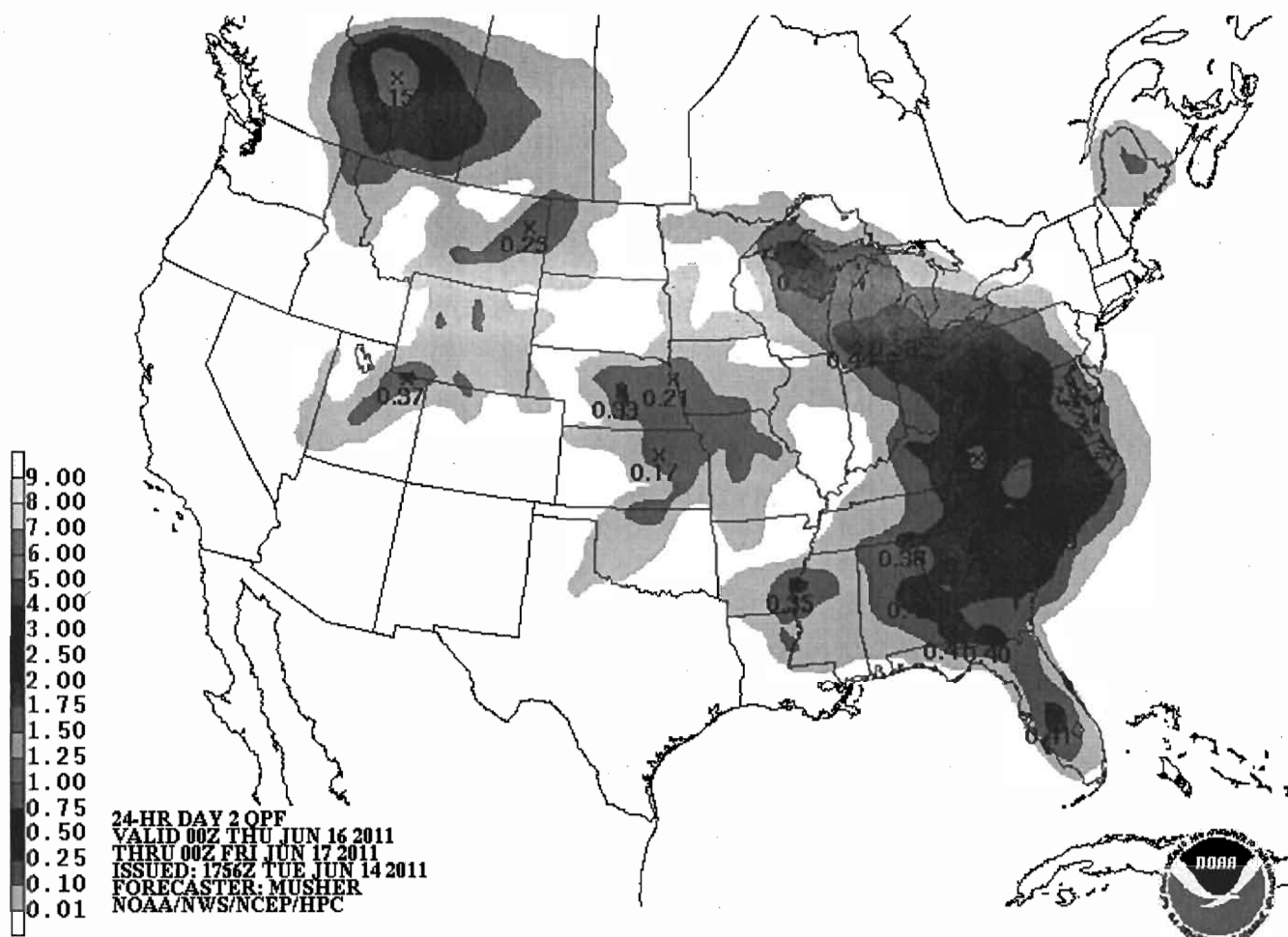
0.01 0.05 0.10 0.25 0.50 0.75 1.00 1.50 2.00 2.50 3.00 4.00 5.00 6.00 8.00 +

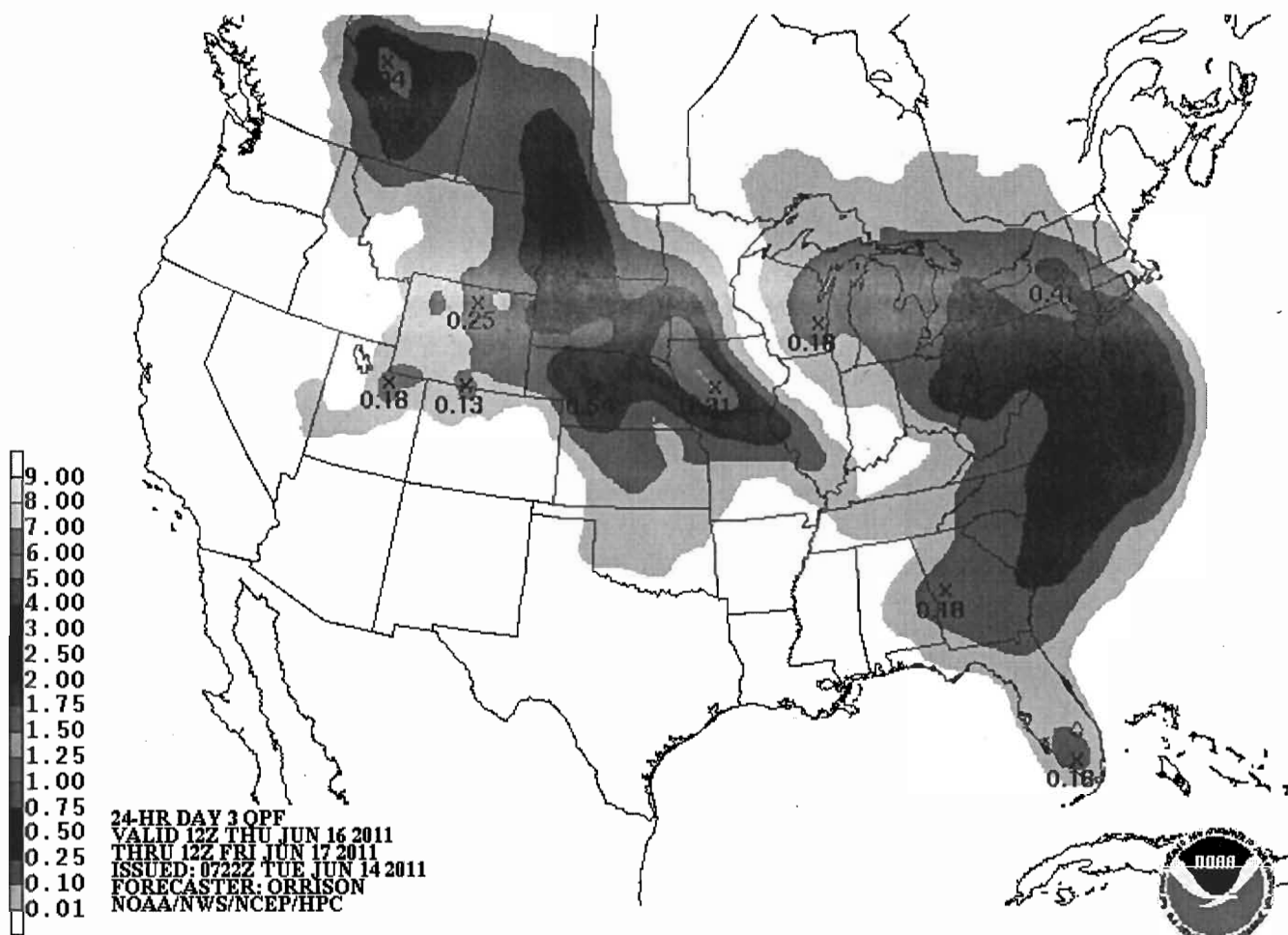
# MBRFC 24-Hour Gage Biased Estimated Rainfall (inches)

Ending: 6/14/2011 at 7:00AM CDT

Created 6/14/2011 at 11:47 AM CDT







7 Day Temperature Forecasts (High/Low)						
	14-Jun-11					
Location	Tues	Wed	Thu	Fri	Sat	Sun
	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun
Helena, MT	68	63/43	63/38	65/40	68/43	61/46
Livingston, MT	69	70/43	66/43	64/43	66/44	62/44
Billings, MT	71	76/48	69/49	68/49	70/48	65/48
West Yellowstone, MT	62	64/33	60/33	59/33	60/34	52/37
Cody, WY	68	74/46	69/47	66/46	69/47	64/47
Sheridan, WY	69	76/46	69/48	70/49	70/47	66/48
Casper, WY	74	82/45	80/50	77/50	77/49	70/48
Laramie, WY	69	75/41	76/46	73/45	71/50	74/47

Mon
20-Jun
67/45
61/43
64/48
59/34
61/45
62/47
70/46
67/47

State	City	Amount of Above Normal Precip (in)
MT	Bozeman	0.5
	Livingston	0.69
	Miles City	0.61
MN	Luverne	0.55
	Pipestone	0.65
IA	Sioux City	0.76
	Ames	0.58
	Des Moines	0.75
	Johnston NWS (central IA)	1.04
	Ottumwa (southeast IA)	2.59
	Donnellson (eastern IA)	1.35
	Keosauqua (eastern IA)	3.75
NE	Tekamah	1.15
MO	Osage Beach	1.05
	Ft Leonard Wood	0.8
	Rolla (central MO)	1.7
	Luray (northeast MO)	6.26



US Army Corps  
of Engineers  
Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem and Tributary Reservoir Bulletin

Project Data Date/Time: 06/14/11 12:00 AM

Bulletin Updated: 6/14/11 2:16 PM

Project	Project Information				Current Data					Occupied Storage		
	Elevations (ft msl)		Storage		Elevation (ft msl)	Dly Elev. Change	Storage (ac-ft)	Inflow (dsf)	Release (dsf)	MP (%)	FC (ac-ft)	FC (%)
	MP	FC	MP	FC								
MRR - Missouri River Mainstem Projects												
*Please note Mainstem and USBR data is calculated manually and will populate before 12:00 p.m.												
Fort Peck	2234.0	2250.0	14,788,000	18,463,000	2252.11	0.18	18,985,000	86,000	65,400	100.0	4,197,000	114.2
Garrison	1837.5	1854.0	18,109,625	23,820,730	1853.38	0.03	23,572,000	190,000	138,700	100.0	5,462,375	95.6
Oahe	1607.5	1620.0	18,834,035	23,136,960	1618.58	0.31	22,580,000	145,000	150,400	100.0	3,745,965	87.1
Big Bend	1420.0	1423.0	1,621,484	1,798,614	1419.89	-0.15	1,614,000	151,000	145,900	99.5	0	0.0
Fort Randall	1350.0	1375.0	3,124,368	5,418,186	1363.12	0.60	4,253,000	163,000	139,200	100.0	1,128,632	49.2
Gavins Point	1204.5	1210.0	320,971	469,928	1207.33	-0.07	376,000	145,000	144,800	100.0	55,029	36.9
System Totals							71,380,000					
NWO - USBR Section 7 Projects												
Tiber	2993.0	3012.5	925,649	1,328,723	3002.54	0.74	1,110,605	9,132	1,483	100.0	184,956	45.9
Clark Canyon	5546.1	5560.4	174,367	253,442	5548.42	0.40	186,391	1,347	285	100.0	12,024	15.2
Canyon Ferry	3797.0	3800.0	1,891,888	1,992,977	3790.03		1,664,579	30,399	11,458	88.0	0	0.0
Boysen	4725.0	4732.2	741,594	892,226	4705.43	0.00	432,430	5,182	5,117	58.3	0	0.0
Buffalo Bill	5393.5	5393.5	646,565	646,565	5350.56	0.42	340,701	6,883	5,606	52.7	-	-
Yellowtail	3640.0	3657.0	1,070,000	1,328,000	3634.38	0.20	954,880	16,462	15,382	89.2	0	0.0
Jamestown	1429.8	1454.0	31,510	221,000	1444.58	0.12	112,584	1,701	1,105	100.0	81,074	42.8
Heart Butte	2064.4	2094.5	67,000	214,000	2067.30	0.89	76,687	2,543	971	100.0	9,687	6.6
Keyhole	4099.3	4111.5	194,000	334,000	4097.78	0.03	174,683	134	0	90.0	0	0.0
Pactola	4580.2	4621.5	56,000	99,000	4582.76	-0.38	58,182	241	410	100.0	2,182	5.1
Shadehill	2271.9	2302.0	120,000	350,000	2273.17	-0.04	126,102	389	495	100.0	6,102	2.7
Glendo	4635.0	4653.0	518,000	790,000	4638.44	0.13	561,455	8,380	7,399	100.0	43,455	16.0
NWO - USACE Tributary Projects												
Bowman-Haley	2754.8	2777.0	18,765	91,482	2755.72	0.08	20,409	160	167	100.0	1,644	2.3
Pipestem	1442.5	1496.3	8,944	142,107	1484.10	-0.18	93,501	-261	496	100.0	84,557	83.8
Chatfield	5432.0	5500.0	27,428	234,207	5431.08	-0.05	26,121	16	49	95.2	0	0.0
Cherry Creek	5550.0	5598.0	12,805	133,134	5550.05	0.00	12,842	2	5	100.0	37	0.0
Bear Creek	5558.0	5635.5	1,882	30,586	5558.33	-0.04	1,916	17	16	100.0	34	0.1
Papio #11	1121.0	1142.0	3,054	16,907	1121.37	-0.02	3,199	1	5	100.0	145	1.0
Papio #16	1104.0	1121.0	1,211	4,782	1104.09	-0.02	1,223	-1	0	100.0	12	0.3
Papio #18	1110.0	1128.2	2,916	10,512	1092.20	0.00	262	0	0	9.0	0	0.0
Papio #20	1095.8	1113.1	2,536	8,611	1095.93	-0.02	2,561	-3	0	100.0	25	0.4
Cottonwood	3875.0	3936.0	655	8,385	3856.51	-0.01	0	0	0	0.0	0	0.0
Cold Brook	3585.0	3651.4	520	7,200	3582.86	0.01	444	1	0	85.4	0	0.0
Lake Audubon	1847.0	1847.0	323,690	323,690	1849.33	0.02	INFLOW AND OUTFLOW NOT CALCULATED					
Lake Pocasse	1617.0	1617.0	11,000	11,000	POOL ELEVATION READ MONTHLY BY PROJECT OFFICE							
Salt Creek #02	1335.0	1350.0	1,100	4,957	1333.81	-0.01	917	-1	0	83.3	0	0.0
Salt Creek #04	1307.4	1322.5	2,531	9,660	1307.00	-0.01	2,406	-2	0	95.1	0	0.0
Salt Creek #08	1287.8	1302.0	1,780	8,375	1288.15	0.00	1,873	12	12	100.0	93	1.4
Salt Creek #09	1271.1	1285.0	1,451	5,864	1271.21	0.01	1,472	1	0	100.0	21	0.5
Salt Creek #10	1244.9	1262.0	1,629	7,468	1245.20	-0.02	1,693	0	2	100.0	64	1.1
Salt Creek #12	1232.9	1252.0	1,808	9,415	1233.04	0.00	1,837	0	0	100.0	29	0.4
Salt Creek #13	1341.0	1355.0	2,161	7,182	1340.87	-0.01	2,130	-1	0	98.6	0	0.0
Salt Creek #14	1244.3	1263.5	7,500	27,597	1244.35	-0.01	7,534	-4	0	100.0	34	0.2
Salt Creek #17	1242.4	1266.0	783	6,628	1242.59	-0.01	831	1	2	100.0	48	0.8
Salt Creek #18	1284.0	1311.0	25,088	96,759	1284.33	-0.01	25,699	8	18	100.0	611	0.9





U.S. Army Corps  
of Engineers  
Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem Reservoir Bulletin

Bulletin Updated: 6/14/11 2:16 PM

Project	Project Information				Current Data (as of 00:00)				Occupied Storage							
	Elevations (ft msl)		Storage Capacity (ac-ft)		Elevation (ft msl)	Dly Elev. Change	Total Occupied Storage (ac-ft)	Previous Day Avg. Inflow (dsf)	Release (dsf)	Multi-Use		Annual FC		Exclusive		
	Top of Multi-Use	Top of Annual FC	Top of Exclusive	Multiple Use						Annual FC	Exclusive	(ac-ft)	(%)	(ac-ft)	(%)	
Project Data Date/Time 6/14/2011																
TODAY																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2252.11	0.18	18,985,000	86,000	65,400	14,788,000	100.0	2,704,000	100.0	1,493,000
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.38	0.03	23,572,000	190,000	138,700	18,110,000	100.0	4,222,000	100.0	1,240,000
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.58	0.31	22,580,000	145,000	150,400	18,834,000	100.0	3,201,000	100.0	545,000
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.89	-0.15	1,614,000	151,000	145,900	1,614,000	99.6	0	0.0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1363.12	0.60	4,253,000	163,000	139,200	3,124,000	100.0	1,129,000	86.2	0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.33	-0.07	376,000	145,000	144,800	307,000	100.0	69,000	80.2	0
System Totals				56,784,000	11,639,000	4,664,000			71,380,000			56,777,000		11,325,000		3,278,000
Project Data Date/Time 6/13/2011																
YESTERDAY																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2251.93	0.17	18,945,000	89,000	63,700	14,788,000	100.0	2,704,000	100.0	996,349
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.35	0.26	23,472,000	142,000	135,300	18,110,000	100.0	4,222,000	100.0	1,140,000
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.27	-0.32	22,592,000	136,000	150,400	18,834,000	100.0	3,201,000	100.0	557,000
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1420.04	0.42	1,605,000	150,000	149,400	1,605,000	99.0	0	0.0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1362.52	0.34	4,206,000	155,000	137,400	3,124,000	100.0	1,082,000	82.7	0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.40	-0.30	377,000	141,000	144,900	307,000	100.0	70,000	81.4	0
System Totals				56,784,000	11,639,000	4,664,000			71,197,000			56,768,000		11,279,000		2,693,349
RECENT ELEVATIONS																
Fort Peck 2252.11 2252.13 2252.20 2252.21 2252.19																
Garrison 1853.41 1853.39 1853.47 1853.56 1853.61																
Oahe 1618.54 1618.52 1618.50 1618.53 1618.54																
Big Bend 1419.93 1419.95 1419.85 1419.71 1419.72																
Fort Randall 1363.13 1363.21 1363.12 1363.18 1363.12																
Gavins Point 1207.33 1207.20 1207.44 1207.35 1207.42																
DAM INFORMATION																
Surveillance Period Triggers		Record Pool Level		Design Dam Crest		Top of Surchage		Design Spillway Elev.								
Weekly	Daily	Elev	Year	Dam Crest	Top of Surchage	Crest	Top of Gate									
2246.0	2247.0	2252.0	1975	2280.5	2256.1	2225.0	2250.0									
1850.0	1854.0	1854.8	1975	1875.0	1858.5	1825.0	1854.0									
1617.5	1618.7	1618.7	1995	1660.0	1644.4	1596.5	1620.0									
1422.0	1422.0	1422.1	1991	1440.0	1433.6	1385.0	1423.0									
1365.0	1370.0	1372.2	1997	1395.0	1379.3	1346.0	1375.0									
1210.0	1210.0	1210.7	1960	1234.0	1221.4	1180.0	1210.0									



# US Army Corps of Engineers®

## NWS 5-Day Forecast Peak

Current Stage  
As of: 10:00

Gage

Stage

Date

Williston

29.53

29.8

16-Jun

Omaha

32.74

33

18-Jun

Nebraska City

24.95

25.6

18-Jun

Brownville

39.62

41.8

19-Jun

Rulo

24.17

25.5

19-Jun

6/14/2011 10:00

Freeboard

> 5'

2' - 5'

< 2'

Overtopped

Breached

Missouri River Federal Levee	Stream Gage Location	Likely Range of Stage with normal precipitation (ft)	Overtop Stage Previous Estimate	Overtop Stage FreeBoard Survey	Current FreeBoard (feet)	FreeBoard w/ NWS 5-Day Forecast (feet)
Williston Levee	Williston	29	n/a	32	2.4	2.2
Omaha Levee D/S 275	Omaha	34	40	38	5.3	5.0
Omaha Flood Wall	Omaha	34	41	41	8.3	8.0
Council Bluffs Ind Levee	Omaha	34	n/a	36.8	4.1	3.8
Council Bluffs Fed Levee	Omaha	34	40	40.2	7.5	7.2
L627	Omaha	34	36	38	5.3	5.0
L624	Omaha	34	35	38	5.3	5.0
L611-614	Omaha	34	35	38	5.3	5.0
R616	Omaha	34	35	36.6	3.9	3.6
R613	Omaha	34	35	36.8	4.1	3.8
L601	Nebraska City	27	25.4	29	4.1	3.6
L594	Nebraska City	27	26	30	5.1	4.6
L575	Nebraska City	27	27	27	BREACHED	BREACHED
R573	Nebraska City	27	27	28.2	3.3	2.8
R562	Nebraska City	27	25.5	28.7	3.8	3.3
R548	Brownville	43	44	43.9	4.3	2.0
L550	Brownville	43	42.8	43.7	4.1	1.8
L536	Brownville	43	44.3	43.9	4.3	2.0
R520	Rulo	25.5	27	30	5.8	4.5

\*NOTE: FreeBoard survey values may not include all low areas. Overtopping could occur at stages approximately 1 foot below surveyed value.



Water encroaching Hamburg June 14 1:00pm

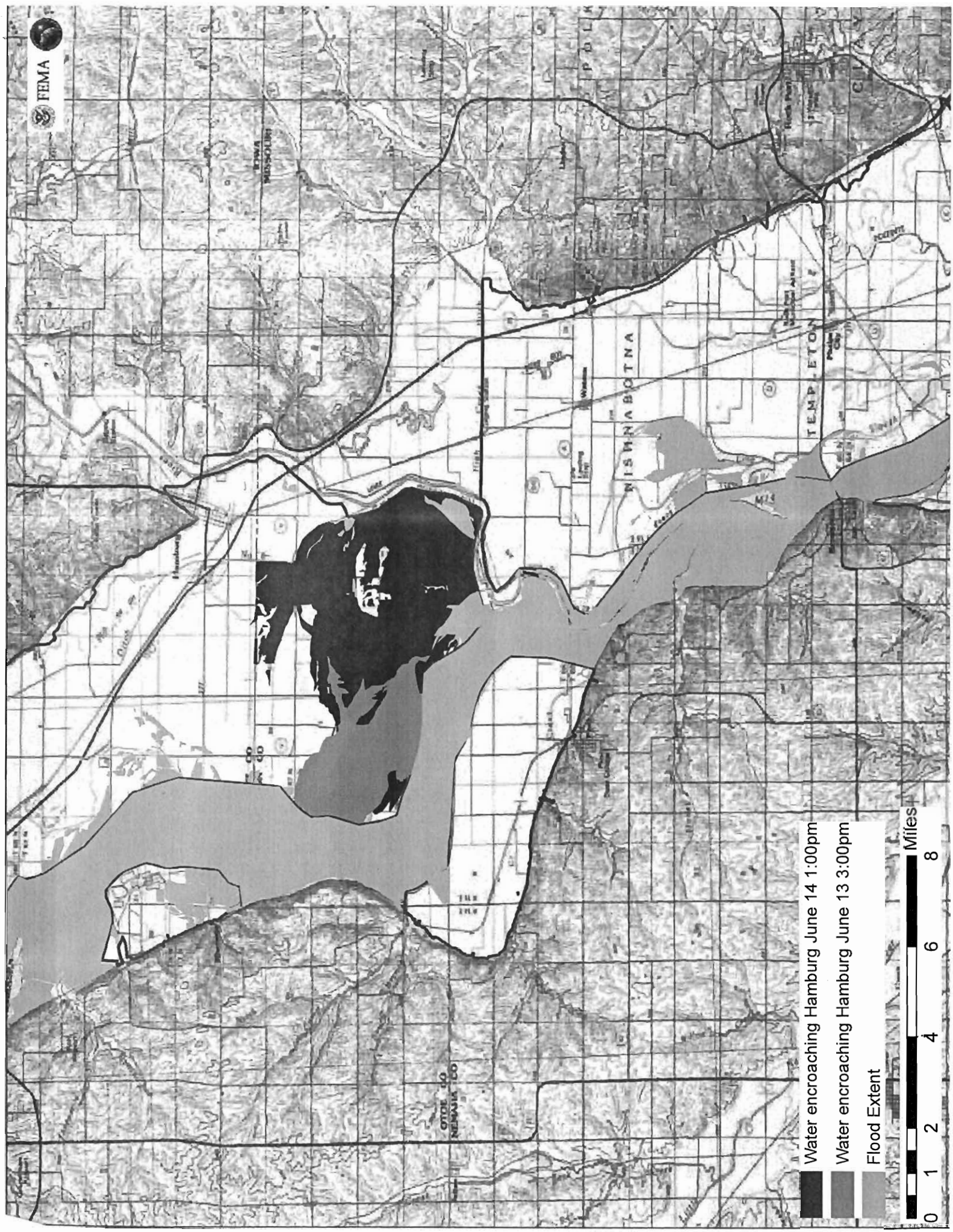
Water encroaching Hamburg June 13 3:00pm

Flood Extent

0 1 2 4 6 8 Miles







Water encroaching Hamburg June 14 1:00pm

Water encroaching Hamburg June 13 3:00pm

Flood Extent

Miles

0 1 2 4 6 8

[REDACTED] NWO

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 9:02 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Re: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments (UNCLASSIFIED)

We were warned this was coming. Noreen is setting up a call for us to talk one-on-one with the HPC experts regarding their confidence in the ominous Day 4-5 QPF.

[REDACTED]  
[REDACTED]  
MRBWM Res Reg Team Lead  
[REDACTED] (Office)  
[REDACTED] (BB)

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO

**Sent:** Thu Jun 16 18:54:51 2011  
**Subject:** FW: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

-----Original Message-----

**From:** Doug Kluck [<mailto:doug.kluck@noaa.gov>]  
**Sent:** Thursday, June 16, 2011 1:43 PM  
**To:** Sarah Palmer  
**Cc:** Bridget Radcliff; [Craig.Derickson@ne.usda.gov](mailto:Craig.Derickson@ne.usda.gov); Barnes, Verlon; [stas@wapa.gov](mailto:stas@wapa.gov); Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; Blechinger, Erik T NWO; [REDACTED] NWK; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED] ID; [REDACTED] NWD; [wayne.nelsonstastny@fws.gov](mailto:wayne.nelsonstastny@fws.gov); [rhonda.knudsen@bia.gov](mailto:rhonda.knudsen@bia.gov); [steven.mietz@nps.gov](mailto:steven.mietz@nps.gov); [lleake@usgs.gov](mailto:lleake@usgs.gov); [mrolsen@usbr.gov](mailto:mrolsen@usbr.gov); [depperly@usbr.gov](mailto:depperly@usbr.gov); [dfritz@usbr.gov](mailto:dfritz@usbr.gov); [Don.Simpson@blm.gov](mailto:Don.Simpson@blm.gov); [Tony.Herrell@blm.gov](mailto:Tony.Herrell@blm.gov); [ssbrooks@blm.gov](mailto:ssbrooks@blm.gov); [theresa.hanley@blm.gov](mailto:theresa.hanley@blm.gov); [brian.yanchik@dot.gov](mailto:brian.yanchik@dot.gov); [cothern.joe@epa.gov](mailto:cothern.joe@epa.gov); [berkley.jim@epa.gov](mailto:berkley.jim@epa.gov)  
**Subject:** Re: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments

Hi All,

Here is a summary of the monthly and seasonal aspects of the weather/climate in the future. The interpretation is that the chances for wetter and cooler conditions continuing in the upper Missouri basin for the next 3 months are enhanced. So not great news and I hope it's wrong.

There will be a Webinar tomorrow at 10am CDT to discuss this and other climate matters in NOAA's Central Region. Please let me know if cannot sign up.

Doug

<<http://www1.gotomeeting.com/g2w/images/475700441/55976021197099447//embed.jpg>>

Monthly Climate Call

Join us for a Webinar on June 17

<<https://www1.gotomeeting.com/register/475700441>>

Space is limited.

Reserve your Webinar seat now at:

<https://www1.gotomeeting.com/register/475700441>

Monthly Climate Call

Title: Monthly Climate Call

Date: Friday, June 17, 2011

Time: 10:00 AM - 11:00 AM CDT

After registering you will receive a confirmation email containing information about joining the Webinar.

System Requirements

PC-based attendees

Required: Windows® 7, Vista, XP or 2003 Server

Macintosh®-based attendees

Required: Mac OS® X 10.4.11 (Tiger®) or newer

<<http://img.gotomeeting.com/g2mimages/1x1.gif>>

--

Doug Kluck

Central Region Climate Services Director 7220 NW 101st Terrace Kansas City, MO

O: 816-994-3008

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 8:38 PM  
**To:** DLL-CENWO-EOC CMT-ALL  
**Cc:** CENWD-EOC NWD; [REDACTED] NWO; Hutson, Marc B COL MIL USA  
USARNORTH; Earl, William W MAJ MIL USA USARNORTH; Clark, Mark D HQ02; [REDACTED]  
[REDACTED] M SAW  
**Subject:** Flood Update #92 (UNCLASSIFIED)  
**Attachments:** NWO Flood Fight Materials 15 Jun.xlsx; dailybull 6\_16\_11.pdf; mainstembull 6\_16\_11.pdf;  
MR\_Levee\_Freeboard\_061611.pdf; Missouri River Basin Water Management Situation  
Report 6-16-11.docx; Day 1 QPF.jpg; QPF day 2.gif; QPF day 3.gif; 24 hr rainfall.jpg;  
tempoutlook16\_june.xls; Re: Weather Summary June 16; Corp of Eng. 6-16-11A 115.JPG

Classification: UNCLASSIFIED

Caveats: FOUO

**\*\*EMERGENCY OPERATIONS\*\***

**1. Situation:**

The long term forecast models (up to 14 days out) show continued rainfall, in higher than normal amounts, across the Missouri River Basin. Over the past 24 hours, general rainfall averaging 0.25" fell across much of Montana. Heavier rain fell across the Republican and mainstream Platte River Basins, generally averaging from 0.50" to 1.00". A few spots reported over 2.00" of rain in north central Kansas. Slightly increased flows downstream of North Platte Nebraska may result in slightly higher flow along the Platte. Stage forecasts as of 0900 do not take the Platte in flood in central Nebraska. A rainfall area (ongoing as of 1300) continues down into the Kansas City area with isolated heavy rain amounts of 1.00" possible since 0700 in northeast Kansas. See attached for 24-hour totals.

**Montana:**

Ft. Peck Dam, MT - If the lake level reaches the elevation of the inner chamber of the flood control tunnel ring gates at 2255.0 the water would be released through the outlet works. The project is investigating what the ramifications would be. Reservoir pool elevations are not predicted to get this high at this time.

**North Dakota:**

Snake Creek Embankment - Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently project does not plan to divert additional water into Lake Audubon. No significant dam safety issues to report

**2. Weather:**

**2.a. Future Precipitation:**

A series of large systems moves across the northern Rockies and along the upper Missouri River Basin over the next several days. This will bring continued chances for showers and thunderstorms, particularly for Montana, Wyoming, and North Dakota. Scattered showers and thunderstorms are anticipated Monday and Tuesday over much of the Missouri River Basin, but too much uncertainty exists to target potential heavy rain locations or amounts at this time. A drier period of about 48 hours appears to enter the Missouri River Basin beginning late Tuesday and Wednesday (mid next week). Warmer temperatures over the Rockies will likely increase snowmelt.

The Day 1 QPF (from 700 hours Thursday to 700 hours Friday):

Widespread rainfall is expected over much of the Missouri River Basin. Flash Flood/Flood watches are in effect for northern Wyoming, Eastern Montana and much of North Dakota.



Heavier rainfall of 1.00" to 2.00" will impact the Garrison Dam and Fort Peck areas especially. Heavy rain (up to 1.50") is likely in the Yellowstone River Basin area of Wyoming/Montana. Lingering rainfall over eastern Kansas and western Missouri will continue to slide southeast dropping isolated 1.00" rain amounts. Severe weather is a good possibility over central and western Nebraska, especially during evening hours. Primary hazards large hail and damaging winds as a line of storm forms by mid evening. Isolated, brief tornadoes will be possible through sunset. General rainfall of less than 0.75" is expected over much of Nebraska with locally higher amounts of 1.00" to 2.00" possible. See attached.

The Day 2 QPF (from 700 hours Friday to 700 hours Saturday):

Locally heavy rain will be ongoing Friday morning and continue through Friday evening across eastern Montana and western North Dakota. Additional rainfall in excess of 1.00" is possible in some areas. Garrison Dam and Fort Peck Dam will be the recipients of initial runoff of rainfall in that region. The rainfall will extend down into the middle/lower Missouri, though slightly less intense in nature. Generally speaking, heavy rain will move north of the Canadian border by Saturday morning. See attached.

The Day 3 QPF (from 700 hours Saturday to 700 hours Sunday):

Heavy rain moves out of the region and is followed by drier and seasonally cool weather the rest of the day Saturday. Increasing rain chances will return to Montana/Wyoming by Sunday evening. Rainfall across the rest of the middle/lower Missouri Basin will be sporadic Saturday night and Sunday and generally light in nature. See attached.

Wind forecasts:

Fort Peck: West winds 5-15 mph today, becoming light and variable overnight. On Friday, winds become northwest and increase to 5-15 mph through the afternoon.

Williston: Winds light and generally north today, becoming northeast overnight. By Friday afternoon, northwest winds increase to 15-25 mph with gusts around 25 mph.

Garrison: Southeast winds 10-15 mph today and overnight winds become east. Friday winds are southeast, becoming southwest, and increase to 15-20 mph with gusts up to 20-25 mph.

Oahe: Southeast winds 10-15 mph today, becoming southwest by late Friday morning. Winds become east through Friday afternoon and increase to 20-30 mph by Friday evening, with evening gusts up to 35 mph.

2.b Temperature forecast:

Temperatures will start a warming trend over the Rockies, which will increase snowmelt. See attached temperature table.

3. Hydro Status:

3.a. River (Flood Stage/Current Stage/Forecast/Date of Peak: Peak Stage) Montana

\* Yellowstone River at Forsyth/10.0/10.14/steady/Jun 19: 10.7'

\* Yellowstone River at Miles City/13.0/12.47/rising/Jun 20: 13.1'

\* Yellowstone River at Glendive/53.5/51.54/rising/Jun 20: 52.4'

\* Yellowstone River near Sidney/19.0/16.76/receding/ Jun 20: 17.1'

\* Jefferson River near Three Forks/8.0/8.96/receding

\* Gallatin River near Logan/8.0/8.76/receding

\* Big Hole River near Melrose/6.0/6.43/steady

\* Missouri River near Toston/10.5/11.42/receding

\* Missouri River near Ulm/13.5/13.69/slight rise/Jun 18: 14'

\* Missouri River near Landusky/25.0/28.49/receding/

- \* Missouri River near Wolf Point/13.0/14.44/steady/
- \* Missouri River near Culbertson/19.0/16.77/steady
- \* Milk River at Tampico/25.0/26.38/receding/
- \* Milk River at Nashua/20.0/25.49/receding/

#### Wyoming

- \* North Platte River at Saratoga/8.5/9.9/steady
- \* North Platte River nr Sinclair/9.0/10.33/steady
- \* Laramie River at Laramie/5.0/4.96/rising/Jun 20: 5.3'
- \* Laramie River near Fort Laramie/7.0/3.94/steady/

#### North Dakota

- \* Missouri River at Williston/22/29.85/cresting/
- \* Missouri River at Bismarck/16.0/18.33/rising/Jun 19: 19.0'
- \* James River at Jamestown/12.0/11.63 (1,830 cfs)/steady/
- \* Heart River near Mandan/17.0/8.16/receding/

#### South Dakota

- \* Missouri River at Pierre/13.0/18.89/steady/
- \* Missouri River near Greenwood/30.0/38.21/steady/
- \* Missouri River near Gayville/55.0/55.98/steady/

#### Nebraska

- \* North Platte River near Mitchell/7.5/9.14/receding/
- \* North Platte River at North Platte/6.0/7.49/steady/
- \* Missouri River at Sioux City/30.0/33.0/rising/Jun 20: 33.4'
- \* Missouri River at Decatur/35.0/37.65/rising/Jun 19: 38.1'
- \* Missouri River near Blair/26.5/31.71/steady/
- \* Missouri River at Omaha/29.0/33.17/cresting/
- \* Missouri River at NE City/18.0/25.87/cresting/
- \* Missouri River at Brownville/33.0/40.31/rising/Jun 20: 42'
- \* Missouri River at Rulo/17.0/23.8/rising/Jun 21: 25.6'

Note: Brownville and Rulo gages rising after L 575 breach.

#### 3.b. Reservoirs:

##### Tributary Reservoirs:

Pipestem Reservoir, (ND) - fell 0.16' to elevation 1483.88 ft-msl. Inflows are near 83 cfs and releases are 605 cfs. 62.9% of the flood pool is occupied.

Jamestown Reservoir, (ND) - fell 0.10' yesterday to elevation 1444.41 ft-msl. Inflows are approximately 765 cfs and releases are 1,112 cfs. The combined Jamestown/Pipestem release is approximately 1,800 cfs. 41.9% of the flood pool is occupied.

Heart Butte, (ND) - Reservoir fell 0.16 ft yesterday with 6.3% of its flood control pool occupied. Pactola (SD) dropped 0.38 ft yesterday with 3.6% of the flood pool occupied. Shadehill (SD) rose 0.07 ft yesterday with 2.8% of the flood pool occupied.

Yellowtail, (MT) - rose 0.39 ft to elevation 3635.02 ft-msl with inflows of 17,537 cfs and releases of 15,389 cfs. 89.9% of its multipurpose pool is occupied.

Tiber, (MT) - rose 0.52 ft to elevation 3003.67 ft-msl. Inflows were 6,719 cfs and releases are 1,265 cfs as the USBR stores water to help reduce inflows to Fort Peck. 51.7% of its flood pool is occupied.

Clark Canyon, (MT) - rose 0.42 ft to elevation 5549.25 ft-msl with inflows of 1,411 cfs and releases of 286 cfs as the USBR stores water to help reduce inflows to Fort Peck. 20.8% of its flood control pool is occupied.

Canyon Ferry, (MT) - rose 1.1 ft to elevation 3792.39 ft-msl with inflows of 32,539 cfs and releases of 13,985 cfs as the USBR stores water to help reduce inflows to Fort Peck. 92.0% of its multipurpose pool is occupied.

Glendo, (WY) - rose 0.04 ft to elevation 4638.56 ft-msl with inflows of 7,859 cfs and releases of 7,480 cfs. 16.6% of its flood control pool is occupied.

Missouri River Mainstem Reservoirs: (Water Management SITREP is attached) Following is a link to the Mainstem regulation forecast. Refresh to obtain the most recent copy if you keep this link open.

<http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/15 Pool Elev: 2252.3 ft-msl

24-hr change: 0.1'

6/15 Ave Inflow: 71,000 cfs

6/15 Ave Release: 65,900 cfs

6/16 Scheduled Release: 65,000 cfs

Garrison Dam (ND)

6/15 Pool Elev: 1853.6 ft-msl

24-hr change: 0.0'

6/15 Ave Inflow: 164,000 cfs

6/15 Ave Release: 140,200 cfs

6/16 Scheduled Release: 145,000 cfs

Oahe Dam (SD)

6/15 Pool Elev: 1618.6 ft-msl

24-hr change: -0.1'

6/15 Ave Inflow: 159,000 cfs

6/15 Ave Release: 150,400 cfs

6/16 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/15 Pool Elev: 1419.6 ft-msl

24-hr change: -0.1'

6/15 Ave Inflow: 150,000 cfs

6/15 Ave Release: 148,400 cfs

6/16 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/15 Pool Elev: 1363.6 ft-msl

24-hr change: 0.1'

6/15 Ave Inflow: 152,000 cfs

6/15 Ave Release: 143,100 cfs

6/16 Scheduled Release: 143,000 cfs

Gavins Point Dam (NE-SD)  
6/15 Pool Elev: 1207.6 ft-msl  
24-hr change: 0.1'  
6/15 Ave Inflow: 153,000 cfs  
6/15 Ave Release: 150,100 cfs  
6/16 Scheduled Release: 150,000 cfs

#### 4. Emergency Operations:

##### 4.a.1 Nebraska:

North Platte, NE - Airport Levee Raise construction is 100% complete.

Blair, NE - Technical Support to the Publics Works Department with construction of a secondary levee around the WTP. This facility not only supports the City of Blair but Cargill Industries. Cargill is also supporting the construction to insure their plant can remain open.

Gothenburg, NE - Received e-mail from City of Gothenburg through Senator Nelson's office thanking the Corps for efforts to support the flood issues.

##### 4.a.2 Montana:

Ft. Peck Dam, MT - 24-hour surveillance continues on the dam and the spillway. Project staff, with assistance from Western Area Power Administration began installing a temporary overhead line restore primary power to the spillway this should be complete 16 Jun 2011. Backup generators are being used to make gate changes in the interim. Continuing to monitor scour along the length of the wing wall. No other Significant Dam Safety Issues.

##### 4.a.3 North Dakota:

Williston, ND - Continue to monitor boil areas and seepage areas along entire levee with increased seepage and some movement of material is occurring in the area of the sand berm. A Project Engineer from the Black Hills Area Office is on sight to monitor the contractors progress. City of Williston has requested technical and direct assistance.

Mark Clark is providing assistance with assistance from Engineering (Omaha H&H) as required. The meeting and press conference at the City of Williston today went very well. Attendees from the City of Williston, Williams County, State of North Dakota, FEMA and USACE were present. The Mayor was very pleased with the USACE briefing and feels the citizens have a better overall understanding of the performance and condition of the levee system.

Garrison Dam - No significant dam safety issues to report.

Fort Yates, ND - Standing Rock Sioux Tribe (SRST): North side is approximately 99% complete. South side work started today.

##### 4.a.4 South Dakota:

Dakota Dunes, SD - Erosion is occurring along the South levee(locally constructed) in some locations, the sponsor is armoring the levee slope with rip-rap to mitigate erosion damage.

Oahe Dam, Big Bend Dam, and Gavins Point Dam : No significant dam safety issues.

Fort Randall Dam, SD - Completed repair of concrete slab spalling near the spillway wall, the work was completed by project personal. After work was completed a portion of the flow was diverted back to the spillway (on the opposite side of where work was completed) until patches cure. No additional significant dam safety issues to report.

##### 4.a.5 Wyoming:

NSTR

4.a.6 Iowa/Missouri:

Pottawattamie County - USACE provided 7,000 lf of 4' Hesco for the Council Bluffs Water Works plant and direct assistance for 2 seepage blankets in Council Bluffs for a boil field, near north 25th street.

Mills County - Submitted a request for direct assistance for levee L611 to place a seepage blanket. The contractor is ready and waiting for the right of entry to proceed. The county also submitted a request for direct assistance in a seepage path from a rodent hole at L601. A contract should be awarded tomorrow.

Harrison County - Has requested 5 8" and 4 16" Pumps. They were sent 2 16" and 1 8" pump, and will receive additional pumps as they become available.

Sioux City IA - The 597LF access road construction project is 80% complete and the work around the municipal well will take place tomorrow.

Hamburg IA - The crew continues 24-7 operations and will continue until all poly and back slope work is complete.

Segment 1 - At 919 with final trimming continuing. Segment 1 is the only poly remaining. Poly and sandbags for poly have been staged and will start tonight.

Segment 2 and Segment 3 - Are fully to 919. Poly was complete last night on Segment 2 from HW 333 closure to the Segment 3 Hesco tie-in on Interstate 29.

Hesco placement in all areas is complete.

Hesco sand bagging to elevation 919 in one section is complete.

Water is on the levee toe from HW 333 closure to I-29 tie in on Segment 3. About one foot of water has been reported at the HW 333 tie in.

There are reports of some seepage, which is being investigated.

4.a.7 Missouri River Levee Surveillance:

Multiple teams comprised of Omaha District and out-of-District staffs continue to coordinate with local sponsors on any issues/concerns they may have, as well as conduct surveillance on levee conditions. Seepage areas/boils have been observed along the levees. Teams have been providing assistance to Sponsors when seepage areas/boils and other actionable items are observed.

L627-MO River LB & Indian Creek RB: The system is in relatively good shape but showing signs of flooding including seepage and pin boils. A sink hole was identified at storm water pump station near levee tow (JTW057) measuring approximately 5'x7' and 4' deep around storm water pipe. Grout around pipe and either grouting or plugging the pipe is the recommended fix. Crews began roadwork on 25th St. at 1930hrs 15 June.

L611/614-MoRiver LB & Upper Pony Creek Ditch LB: Seepage and boils continue to increase. Sponsor will ring large sand boils on June 16.

L601-Watkins Ditch RB: The rock quarry initially identified as a borrow area for the hole through the levee at RM585 is unsuitable. A suitable replacement is currently being identified. At river mile 585, water with medium hydrant flow was flowing through the levee. Two rodent holes on the riverside were identified as the source of the flow and were plugged with 10 bags of Bentonite and sandbagged for stabilization. The landside hole was ringed with 120 sandbags resulting in flow dissipating to a trickle. On June 15, approval for a contracted fix was obtained.

L575-BW, McKissock, Buchanan, Atchison, Hamburg: Water is currently at 914' and beginning to touch the toe of the Ditch #6 levee. The I-29 overpass at BNSF closure is complete and material has been pushed up to an elevation 919 in most places. Diking District personnel

deepened the notch they had made in the levee because the notch was not allowing sufficient overtopping of water. Nine diversion pipes in Ditch 6 were opened to relieve flooding pressure.

R616/613-MO River RB and Papillion Creek LB: Water levels on the staff gage has increased by 0.5' since yesterday.

#### 4.b Equipment:

##### Sandbags

Issued: 14,302,000

On Hand: 6,709,500

Projected: 6,500,000

##### HESCO 3'

Issued: 8,200 LF

On Hand: 9,000 LF

Projected: 14,000 LF

##### Hesco 4'

Issued: 59,070 LF

On Hand: 13,950 LF

Projected: 30,000 LF

##### Poly Rolls

Issued: 2,766 rolls

On Hand: 1,934 rolls

Projected: 1,500 rolls

##### Pumps

Issued: 44

On Hand: 7

Serviceable: 4

Projected: 25-30

#### Additional Supplies due in:

Pumps: 3 pumps in maintenance for parts/repair (MRPO tech).

Sling Bags: 1,350 ea. 2,000m lb w/slugs on-hand.

Sandbags: 1,000,000 ETA 16 June.

Heavy Bags: 6,420 ex (35 x 35 x 35) on-hand now.

HESCO 4 FT: 15,000 LF, ETA 18 June.

Pumps: Working BPA to lease pumps with "200" FUNDS.

#### 4.c Funding:

\* Total Code 200 Funding received to date for this event: \$47,662,425

\* Total Code 200 Funding waiting to be received for this event: \$0

\* Total Code 200 Funding revoked to date for this event: \$2,834,000

\* Class 219 - Emergency Operations - Direct Assistance - \$250,000 - WAD and FAD received 3/14/2011

\* Class 219 - Emergency Operations - Direct Assistance - \$3.825M - WAD received 03/15/11. FAD received 03/16/11.

\* Class 219 - Additional Funds Request on 24 March - \$231,425 - WAD and FAD received 03/24/11.

\* Class 219 - Emergency Operations - Direct Assistance - \$2.5M revoked - 4/13/11

\* Class 219 - Emergency Operations - Direct Assistance - \$100k revoked - 4/22/11

\* Class 210 - Response Operations - Alabama Tornadoes - \$56k - MIPR - 4/30/11 - received \$45k on 4/30/11

- \* Class 210 - Response Operations - Alabama Tornadoes - \$25k - Request and received for EOC Operations and deployments on 4/30/11
- \* Class 210 - Response Operations - Alabama Tornadoes - \$14k revoked - 05/02/2011
- \* Class 210 - Response Operations - Alabama Tornadoes - \$10k revoked - 05/03/2011
- \* Class 200 - Emergency Operations - Response Operations - \$500,000 - WAD and FAD received on 05/25/11
- \* Class 200 - Emergency Operations - Response Operations - \$750,000 - WAD and FAD received on 05/26/11
- \* Class 200 - Emergency Operations - Response Operations - \$5,000,000 - FAD received 05/27/11
- \* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - FAD received 05/27/11
- \* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/27/11 - WAD received for \$2M received on 05/31/11 - verbal received on 06/04/11 for \$1M
- \* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - request sent 05/28/11 - WAD received on received 05/28/11
- \* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/31/11 - WAD received 06/01/11
- \* Class 200 - Emergency Operations - Response Operations - \$6,500,000 - request sent 06/01/11 - WAD for \$3M received 06/02/011 - verbal received on 06/04/11 for \$3.5M
- \* Class 200 - Emergency Operations - Response Operations - \$1,500,000 - request sent 06/03/11 - verbal received 06/03/11
- \* Class 200 - Emergency Operations - Response Operations - \$1,000,000 - request sent 06/03/11 - verbal received 06/03/11 - WAD received 06/06/11
- \* Class 200 - Emergency Operations - Response Operations - \$500,000 - request sent 06/04/11 - verbal received 06/04/11
- \* Class 200 - Emergency Operations - Response Operations - \$2,000,000 - request sent 06/05/11 - verbal received 06/05/11
- \* Class 200 - Emergency Operations - Response Operations - \$400,000 - request sent 06/06/11 - verbal received 06/07/11
- \* Class 200 - Emergency Operations - Response Operations - \$50,000 - received 06/08/11
- \* Class 200 - Emergency Operations - Response Operations - \$980,000 - request sent 06/08/11 - WAD received 06/09/11
- \* Class 200 - Emergency Operations - Response Operations - \$750,000 - request sent 06/09/11 - WAD received 06/10/11
- \* Class 21M - Emergency Operations - Response Operations - \$210k revoke request sent 06/10/11

- \* Total Code 500 Funding received to date: \$827,904
- \* Class 520 Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/2/11.
- \* Class 52A Additional Request for Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/10/11.
- \* Class 520 Additional Request for Funding - Advance Measures - Technical assistance - \$101,640. WAD and FAD received on 3/24/11.
- \* Class 519 Funding - Advance Measures - Direct Assistance - \$376,264. WAD and FAD received on 3/28/11.
- \* Class 520 Funding - Advance Measures - Technical assistance - \$110k - FAD received on 05/12/11.
- \* Class 510 Funding - Advance Measures - Direct assistance - \$40k - FAD received on 05/26/11

Daily Labor Burn Rate: \$137,500  
 Daily Contract Burn Rate: \$300,000  
 Combined Daily Burn Rate: \$437,500

4.d Number of Personnel Supporting EOC Operations:

Working in field: 59  
Working in District: 50  
Outside District: 1

5.a EOC Activation - Level IV - 24 hour Activation (Shifts: 0700-1930)

[REDACTED]  
Chief, Readiness Branch  
U.S. Army Corps of Engineers - Omaha District  
1616 Capitol Ave., Ste 9000  
Omaha, NE 68102  
[REDACTED] Office  
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Classification: UNCLASSIFIED  
Caveats: FOUO



180015JUN11

SANDBAGS	3' HESCO	4' HESCO	POLY ROLLS	PUMPS
ISSUED:	14,302,000	8,200 LF	2,766 rolls	44
ON HAND:	6,709,500	9,000 LF	1,934 rolls	4 / 7
Serviceable / On Hand				
PROJECTED REQTS:	6,500,000	14,000 LF	1,500 rolls	25-30

## Notes

1. **Pumps:** 3 pumps in maintenance for parts/repair (MRPO tech).
2. **Slingbags:** 1,350ea 2,000 lb w/ slings on-hand.
3. **Sandbags:** 1,000,000 ETA 16 June.
4. **Heavybags:** 6,420ea (35x35x35) on-hand now
5. **HESCO:** 15,000 LF ETA 18 June.
6. **Pumps:** Working BPA to lease pumps with "200" funds.



US Army Corps  
of Engineers  
Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem and Tributary Reservoir Bulletin

Project Data Date/Time: 06/16/11 12:00 AM

Bulletin Updated: 6/16/11 1:16 PM

Project	Project Information				Current Data					Occupied Storage		
	Elevations (ft msl)		Storage		Elevation (ft msl)	Dly Elev. Change	Storage (ac-ft)	Inflow (dsf)	Release (dsf)	MP (%)	FC (ac-ft)	FC (%)
	MP	FC	MP	FC								
MRR - Missouri River Mainstem Projects												
*Please note Mainstem and USBR data is calculated manually and will populate before 12:00 p.m.												
Fort Peck	2234.0	2250.0	14,788,000	18,463,000	2252.30	0.09	19,019,000	71,000	65,900	100.0	4,231,000	115.1
Garrison	1837.5	1854.0	18,109,625	23,820,730	1853.64	-0.01	23,696,000	164,000	140,200	100.0	5,586,375	97.8
Oahe	1607.5	1620.0	18,834,035	23,136,960	1618.58	-0.06	22,605,000	159,000	150,400	100.0	3,770,965	87.8
Big Bend	1420.0	1423.0	1,621,484	1,798,614	1419.63	-0.11	1,608,000	150,000	148,400	99.2	0	0.0
Fort Randall	1350.0	1375.0	3,124,368	5,418,186	1363.64	0.11	4,309,000	152,000	143,100	100.0	1,184,632	51.6
Gavins Point	1204.5	1210.0	320,971	469,928	1207.58	0.14	382,000	153,000	150,100	100.0	61,029	41.0
System Totals							71,619,000					
NWO - USBR Section 7 Projects												
Tiber	2993.0	3012.5	925,649	1,328,723	3003.67	0.52	1,134,019	6,719	1,265	100.0	208,370	51.7
Clark Canyon	5546.1	5560.4	174,367	253,442	5549.25	0.42	190,788	1,411	286	100.0	16,421	20.8
Canyon Ferry	3797.0	3800.0	1,891,888	1,992,977	3792.39	1.11	1,739,852	32,539	13,985	92.0	0	0.0
Boysen	4725.0	4732.2	741,594	892,226	4705.74	0.18	436,313	6,252	5,177	58.8	0	0.0
Buffalo Bill	5393.5	5393.5	646,565	646,565	5352.48	0.99	352,420	8,676	5,614	54.5	-	-
Yellowtail	3640.0	3657.0	1,070,000	1,328,000	3635.02	0.39	961,841	17,537	15,389	89.9	0	0.0
Jamestown	1429.8	1454.0	31,510	221,000	1444.41	-0.10	110,908	765	1,112	100.0	79,398	41.3
Heart Butte	2064.4	2094.5	67,000	214,000	2067.20	-0.16	76,333	883	1,169	100.0	9,333	6.3
Keyhole	4099.3	4111.5	194,000	334,000	4097.76	0.03	174,506	133	0	90.0	0	0.0
Pactola	4580.2	4621.5	56,000	99,000	4582.02	-0.38	57,533	191	359	100.0	1,533	3.6
Shadehill	2271.9	2302.0	120,000	350,000	2273.23	0.07	126,415	685	501	100.0	6,415	2.8
Glendo	4635.0	4653.0	518,000	790,000	4638.56	0.04	563,057	7,859	7,480	100.0	45,057	16.6
NWO - USACE Tributary Projects												
Bowman-Haley	2754.8	2777.0	18,765	91,482	2756.00	0.02	20,921	373	250	100.0	2,156	3.0
Pipestem	1442.5	1496.3	8,944	142,107	1483.88	-0.16	92,754	-308	605	100.0	83,810	82.5
Chatfield	5432.0	5500.0	27,428	234,207	5430.98	-0.05	25,983	16	49	94.7	0	0.0
Cherry Creek	5550.0	5598.0	12,805	133,134	5550.00	-0.02	12,800	2	15	100.0	0	0.0
Bear Creek	5558.0	5635.5	1,882	30,586	5558.33	0.00	1,916	16	17	100.0	34	0.1
Papio #11	1121.0	1142.0	3,054	16,907	1121.37	-0.01	3,199	2	4	100.0	145	1.0
Papio #16	1104.0	1121.0	1,211	4,782	1104.06	-0.03	1,219	-2	0	100.0	8	0.2
Papio #18	1110.0	1128.2	2,916	10,512	1092.20	0.00	262	0	0	9.0	0	0.0
Papio #20	1095.8	1113.1	2,536	8,611	1095.92	-0.02	2,556	-1	0	100.0	20	0.3
Cottonwood	3875.0	3936.0	655	8,385	3856.50	-0.01	0	0	0	0.0	0	0.0
Cold Brook	3585.0	3651.4	520	7,200	3582.87	0.00	444	0	0	85.5	0	0.0
Lake Audubon	1847.0	1847.0	323,690	323,690	1849.38	0.01	INFLOW AND OUTFLOW NOT CALCULATED					
Lake Pocasse	1617.0	1617.0	11,000	11,000	POOL ELEVATION READ MONTHLY BY PROJECT OFFICE							
Salt Creek #02	1335.0	1350.0	1,100	4,957	1333.81	-0.02	917	-2	0	83.3	0	0.0
Salt Creek #04	1307.4	1322.5	2,531	9,660	1307.02	-0.02	2,412	-3	0	95.3	0	0.0
Salt Creek #08	1287.8	1302.0	1,780	8,375	1288.15	0.00	1,873	16	16	100.0	93	1.4
Salt Creek #09	1271.1	1285.0	1,451	5,864	1271.23	-0.01	1,476	1	2	100.0	25	0.6
Salt Creek #10	1244.9	1262.0	1,629	7,468	1245.20	-0.02	1,693	0	3	100.0	64	1.1
Salt Creek #12	1232.9	1252.0	1,808	9,415	1233.05	-0.01	1,839	-1	0	100.0	31	0.4
Salt Creek #13	1341.0	1355.0	2,161	7,182	1340.88	-0.01	2,132	-1	0	98.7	0	0.0
Salt Creek #14	1244.3	1263.5	7,500	27,597	1244.35	-0.01	7,534	-4	0	100.0	34	0.2
Salt Creek #17	1242.4	1266.0	783	6,628	1242.53	-0.03	824	0	1	100.0	41	0.7
Salt Creek #18	1284.0	1311.0	25,088	96,759	1284.30	-0.04	25,642	-22	17	100.0	554	0.8



**Bulletin Updated:** 6/16/11 1:15 PM

Project	Project Information				Current Data (as of 00:00)				Occupied Storage									
	Elevations (ft msl)		Storage Capacity (ac-ft)		Elevation (ft msl)	Dly Elev. Change	Total Occupied Storage (ac-ft)	Previous Day Avg.		Multi-Use		Annual FC		Exclusive				
	Top of Multi-Use	Top of Annual FC	Top of Exclusive	Multiple Use				Annual FC	Exclusive	(ac-ft)	(%)	(ac-ft)	(%)					
Project Data Date/Time 6/16/2011																		
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2252.30	0.09	19,019,000	71,000	65,900	14,788,000	100.0	2,704,000	100.0	1,527,000		
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.64	-0.01	23,696,000	164,000	140,200	18,110,000	100.0	4,222,000	100.0	1,364,000		
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.58	-0.06	22,605,000	159,000	150,400	18,834,000	100.0	3,201,000	100.0	570,000		
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.63	-0.11	1,608,000	150,000	148,400	1,608,000	99.2	0	0.0	0.0		
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1363.64	0.11	4,309,000	152,000	143,100	3,124,000	100.0	1,185,000	90.5	0		
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.58	0.14	382,000	153,000	150,100	307,000	100.0	75,000	87.2	0		
System Totals				56,784,000	11,639,000	4,664,000			71,619,000			56,771,000		11,387,000		3,461,000		
YESTERDAY																		
Project Data Date/Time 6/15/2011																		
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2252.21	0.10	19,010,000	79,000	65,800	14,788,000	100.0	2,704,000	100.0	999,768		
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.65	0.27	23,650,000	180,000	140,100	18,110,000	100.0	4,222,000	100.0	1,318,000		
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.64	0.06	22,590,000	156,000	150,200	18,834,000	100.0	3,201,000	100.0	555,000		
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.74	-0.15	1,606,000	148,000	151,500	1,606,000	99.1	0	0.0	0.0		
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1363.53	0.41	4,292,000	162,000	142,100	3,124,000	100.0	1,168,000	89.2	0		
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.44	0.11	377,000	149,000	148,400	307,000	100.0	70,000	81.4	0		
System Totals				56,784,000	11,639,000	4,664,000			71,525,000			56,769,000		11,365,000		2,872,768		
DAM INFORMATION																		
Surveillance Period Triggers			Record Pool Level		Design		Top of		Design Spillway Elev.		RECENT ELEVATIONS							
Weekly	Daily	24 hour	Elev	Year	Dam Crest	Surcharge	Crest	Top of Gate	Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point	06/16	06/16	06/16	06/16
2246.0	2247.0		2252.0	1975	2280.5	2256.1	2225.0	2250.0	2252.30	2252.30	2252.22	2252.70	2252.29	2252.27	02:00	05:00	08:00	12:00
1850.0	1854.0	1854.8	1854.8	1975	1875.0	1858.5	1825.0	1854.0	1853.70	1853.78	1853.78	1853.75	1853.75	1853.75	1853.70	1853.72	1853.75	1853.75
1617.5	1618.7	1618.7	1618.7	1995	1680.0	1644.4	1596.5	1620.0	1618.56	1618.59	1618.61	1618.64	1618.64	1618.68	1618.56	1618.59	1618.61	1618.68
1422.0	1422.0	1423.0	1422.1	1991	1440.0	1433.6	1385.0	1423.0	1419.63	1419.70	1419.69	1419.71	1419.71	1419.74	1419.63	1419.70	1419.69	1419.74
1365.0	1370.0	1372.0	1372.2	1997	1395.0	1379.3	1346.0	1375.0	1363.67	1363.70	1363.64	1363.67	1363.66	1363.66	1363.67	1363.70	1363.64	1363.66
1210.0	1210.0	1210.7	1210.7	1960	1234.0	1221.4	1180.0	1210.0	1207.59	1207.59	1207.59	1207.59	1207.57	1207.57	1207.59	1207.59	1207.59	1207.57



# US Army Corps of Engineers®

## Current Stage As of: 10:00

### Gage

Williston  
Omaha  
Nebraska City  
Brownville  
Rulo

29.85  
33.18  
25.86  
40.27  
23.8

### Stage

29.9  
33.18  
25.86  
42  
25.6

### Date

16-Jun  
Steady  
Steady  
20-Jun  
21-Jun

## Freeboard

> 5'  
2' - 5'  
< 2'  
Overtopped  
Breach

6/16/2011 10:00

Missouri River Federal Levee	Stream Gage Location	Likely Range of Stage with normal precipitation (ft)	Overtop Stage Previous Estimate	Overtop Stage FreeBoard Survey	Current FreeBoard (feet)	FreeBoard w/ NWS 5-Day Forecast (feet)
Williston Levee	Williston	30	n/a	32	2.2	2.1
Omaha Levee D/S 275	Omaha	34	40	38	4.8	4.8
Omaha Flood Wall	Omaha	34	41	41	7.8	7.8
Council Bluffs Ind Levee	Omaha	34	n/a	36.8	3.6	3.6
Council Bluffs Fed Levee	Omaha	34	40	40.2	7.0	7.0
L627	Omaha	34	36	38	4.8	4.8
L624	Omaha	34	35	38	4.8	4.8
L611-614	Omaha	34	35	38	4.8	4.8
R616	Omaha	34	35	36.6	3.4	3.4
R613	Omaha	34	35	36.8	3.6	3.6
L601	Nebraska City	27	25.4	29	3.1	3.1
L594	Nebraska City	27	26	30	4.1	4.1
L575	Nebraska City	27	27	27	BREACHED	BREACHED
R573	Nebraska City	27	27	28.2	2.3	2.3
R562	Nebraska City	27	25.5	28.7	2.8	2.8
R548	Brownville	43	44	43.9	3.6	1.9
L550	Brownville	43	42.8	43.7	3.4	1.7
L536	Brownville	43	44.3	43.9	3.6	1.9
R520	Rulo	25.5	27	30	6.2	4.4

\*NOTE: FreeBoard survey values may not include all low areas. Overtopping could occur at stages approximately 1 foot below surveyed value.

## Missouri River Basin Water Management Situation Report – 6-16-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. The relatively high inflows that have been coming into Fort Peck and Garrison Reservoirs are beginning to drop down to the release values, as several days have passed since the rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/16/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	71.0	65.9	2250	2252.3	0.1
Garrison	164.0	140.2	1854	1853.6	0.0
Oahe	159.0	150.4	1620	1618.6	-0.1
Big Bend	150.0	148.4	1423	1419.6	-0.1
Fort Randall	152.0	143.1	1375	1363.6	0.1
Gavins Point	153.0	105.1	1210	1207.6	0.1

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. An issue surfaced yesterday that required the spillway at Fort Randall to be shut and the flood control tunnels to be used. Repairs have been made and at least a portion of the spillway is now being used.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/16/11)**

<b>Reservoir</b>	<b>Current</b>	<b>Total</b>	<b>Remaining</b>	<b>Exclusive</b>	<b>% Excl Left</b>
	<b>kAF</b>	<b>kAF</b>	<b>kAF</b>	<b>kAF</b>	
Fort Peck	19,019	18,463	-556	971	-57
Garrison	23,696	23,821	125	1,489	8
Oahe	22,605	23,137	532	1,102	48
Big Bend	1,608	1,798	190	60	100
Fort Randall	4,309	5,418	1,109	985	100
Gavins Point	382	450	68	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. The release from Fort Peck was increased to 65 kcfs last Sunday, June 12, and will be held at that level for the next few days before it is returned to 60 kcfs. Releases 1 week out from all six reservoirs will be at the currently anticipated maximum releases at the other five reservoirs. At this time, only Fort Randall is not at the currently forecasted maximum, as the Gavins Point Reservoir is running a little higher than desired. Full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/16/11)**

<b>Reservoir</b>	<b>Yesterday</b>	<b>Forecast</b>	<b>7 days out</b>	<b>14 days out</b>	<b>Pre-2011</b>
	<b>kcfs</b>	<b>Today</b>	<b>22 June</b>	<b>29 June</b>	<b>Record</b>
		<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>
Fort Peck	65.9	65	60	60	35
Garrison	140.2	145	150	150	65
Oahe	150.4	150	150	150	59
Big Bend	148.4	150	150	150	74
Fort Randall	143.1	143	148	148	67
Gavins Point	105.1	150	150	150	70

## River Conditions

Levees have been constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases move through their downstream reaches and inflows from the downstream reaches and localized precipitation joins these high releases. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/16/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.3	20.6	mid-Jun
Pierre, SD	13	18.9	18.7	mid-Jun
Sioux City, IA	30	33.0	35-37	mid-Jun thru July
Decatur, NE	35	37.8	40-42	mid-Jun thru July
Omaha, NE	29	33.2	34-36	mid-Jun thru July
Nebraska City, NE	18	25.9	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.6	27-32	mid-Jun thru July
Kansas City, MO	32	25.7	30-39	mid-Jun thru July
Waverly, MO	20	23.8	27-31	mid-Jun thru July
Boonville, MO	21	20.9	27-33	mid-Jun thru July
Hermann, MO	21	21.6	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still about 3 feet below the constructed levee crests.

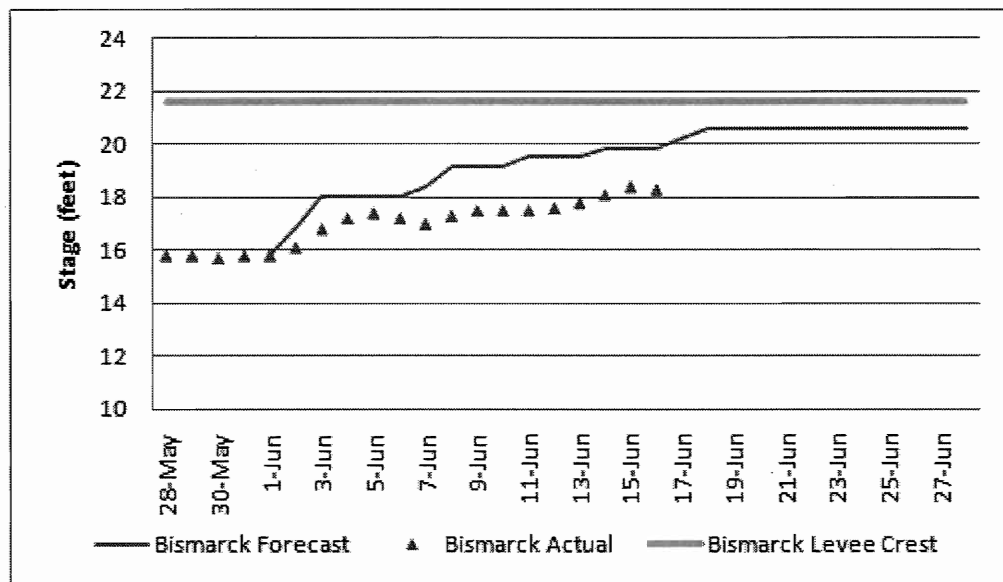


Figure 1. Missouri River stages at Bismarck, North Dakota.

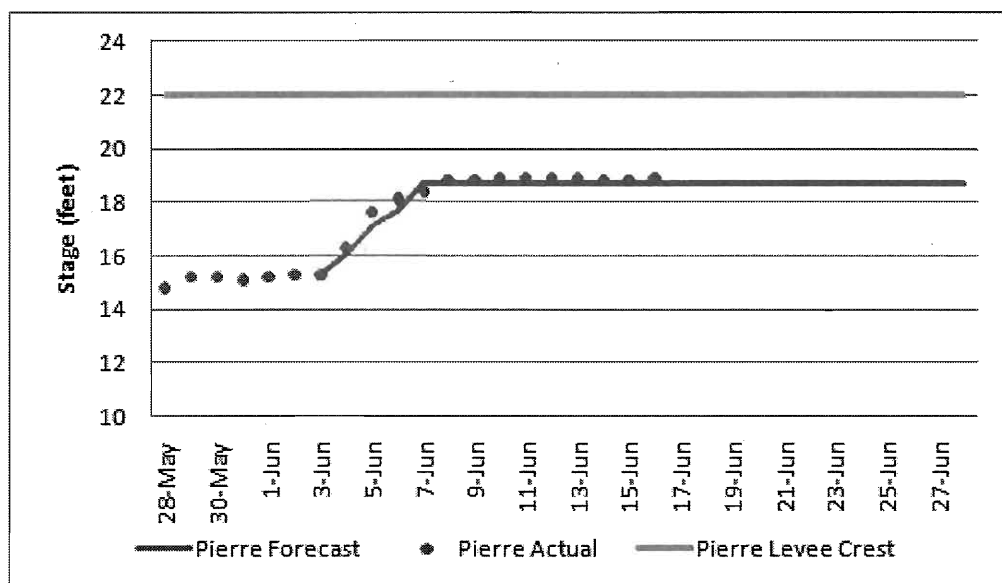


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and western Nebraska. Inflows from the heavier forecasted areas would drain into the five lower reservoirs in the System. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.



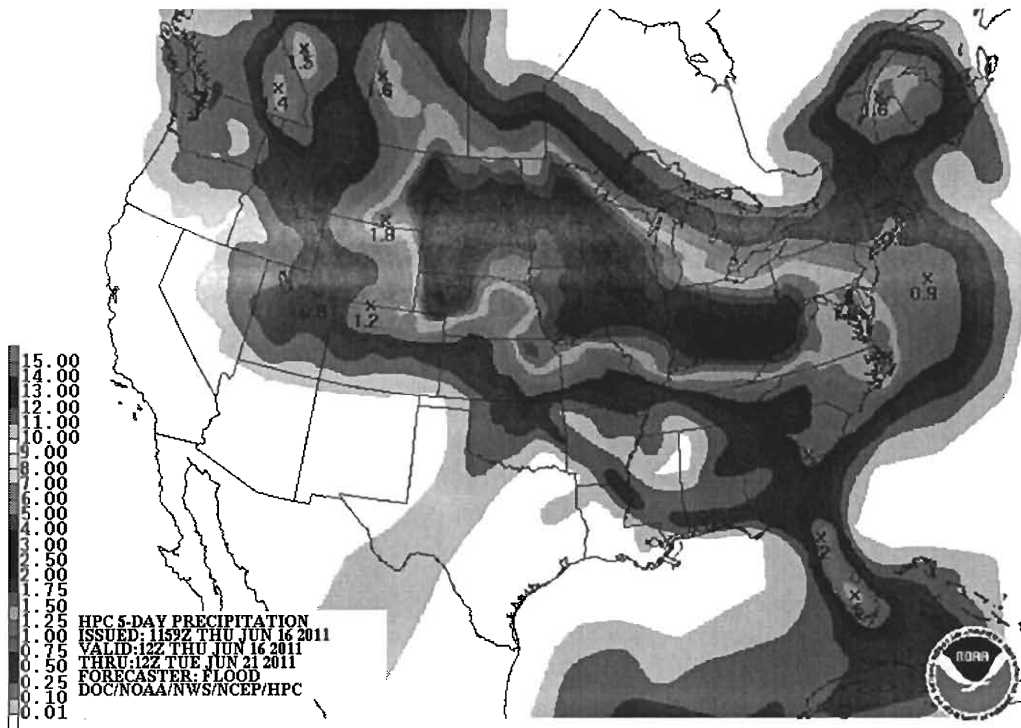


Figure 3. 5-day total QPF ending 0700 Tuesday, June 21, 2011.

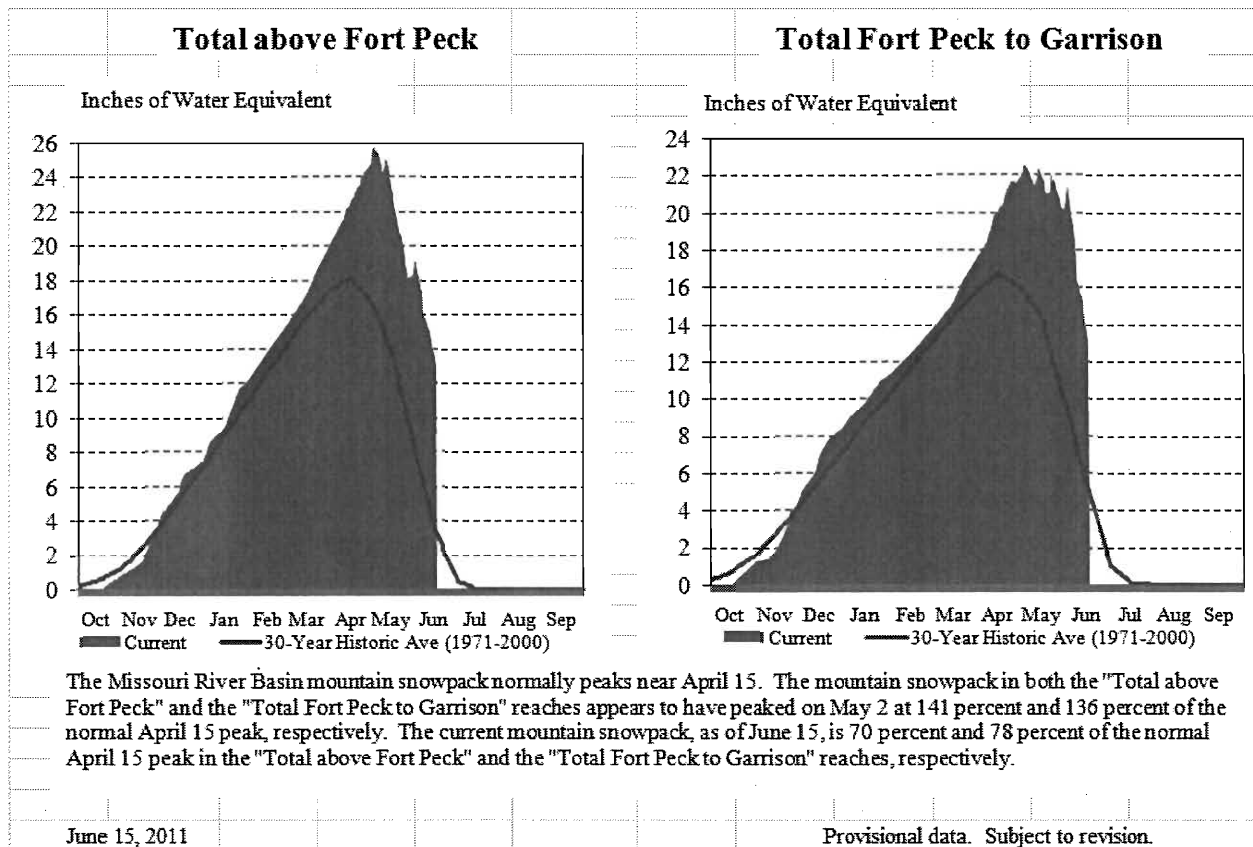


Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 14, 2011.

## Current Actions and Notable Information

Levee construction for six cities has been completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. The most recent of these levees, the Hamburg levee, has also been completed. The failure of this levee occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is now above the 2010 maximum.

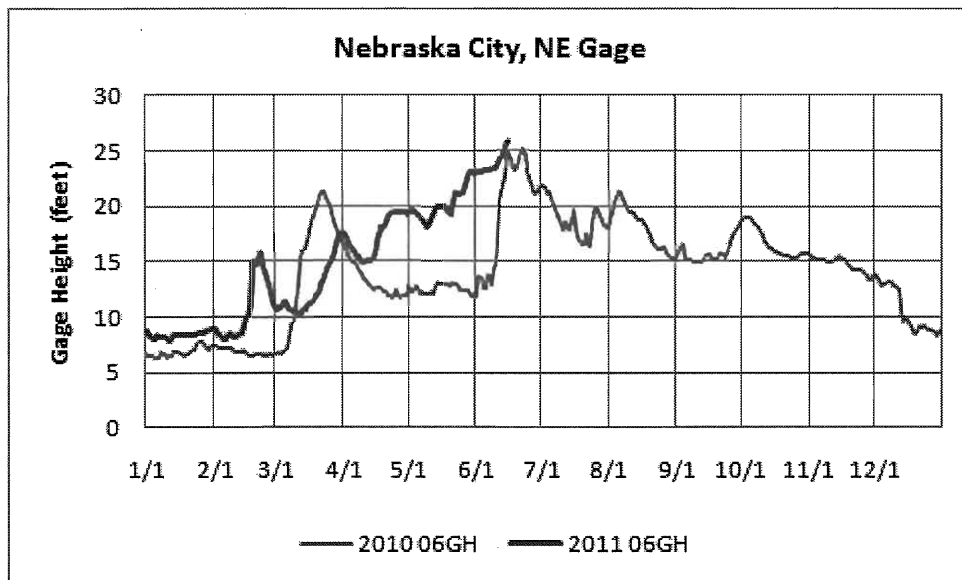


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri Monday, June 13. This location is across the river from Rulo, Nebraska. The gage plot for this location is shown below as Figure 6. Another factor, such as duration of water against the levee or back-to-back years with water against the levee appears to be playing a role in the failure of this levee as well as the levee near Hamburg.

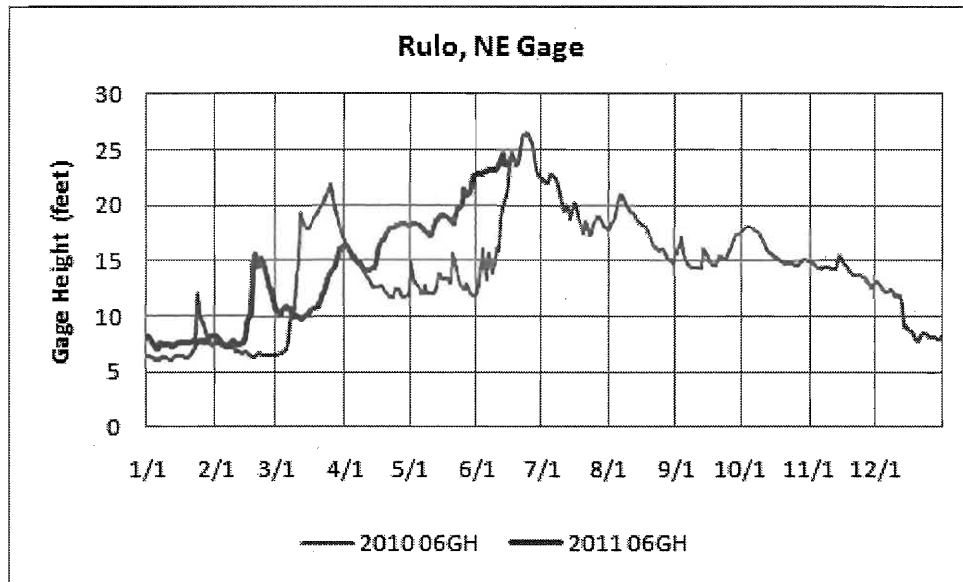


Figure 6. River stages at Rulo, Nebraska for 2010 and 2011.

Relatively little rain fell in the Missouri river basin yesterday. The exceptions are extensive rains over much of eastern Montana and heavier rains in an area of Nebraska and Kansas that drain into the Kansas River where the Kansas City District is continuing to evacuate water from those reservoirs with considerable water remaining in their flood control pools. Figure 7 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

**NWS Central Region: Current 1-Day Observed Precipitation**  
**Valid at 6/16/2011 1200 UTC- Created 6/16/11 17:41 UTC**

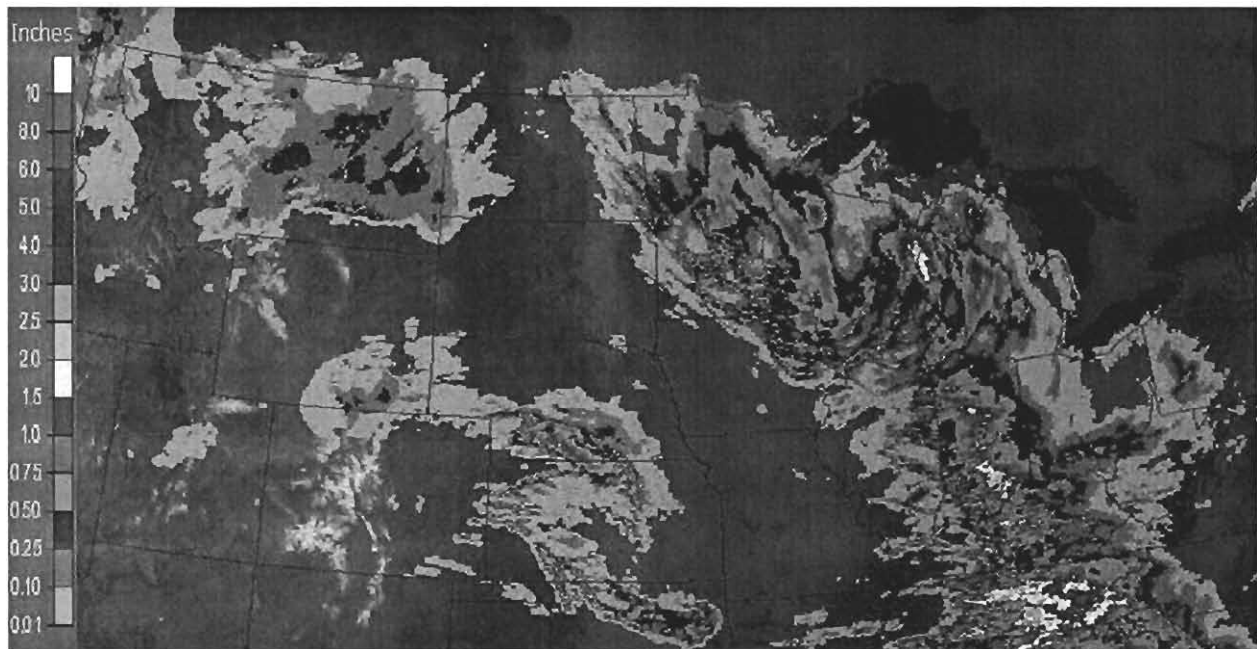
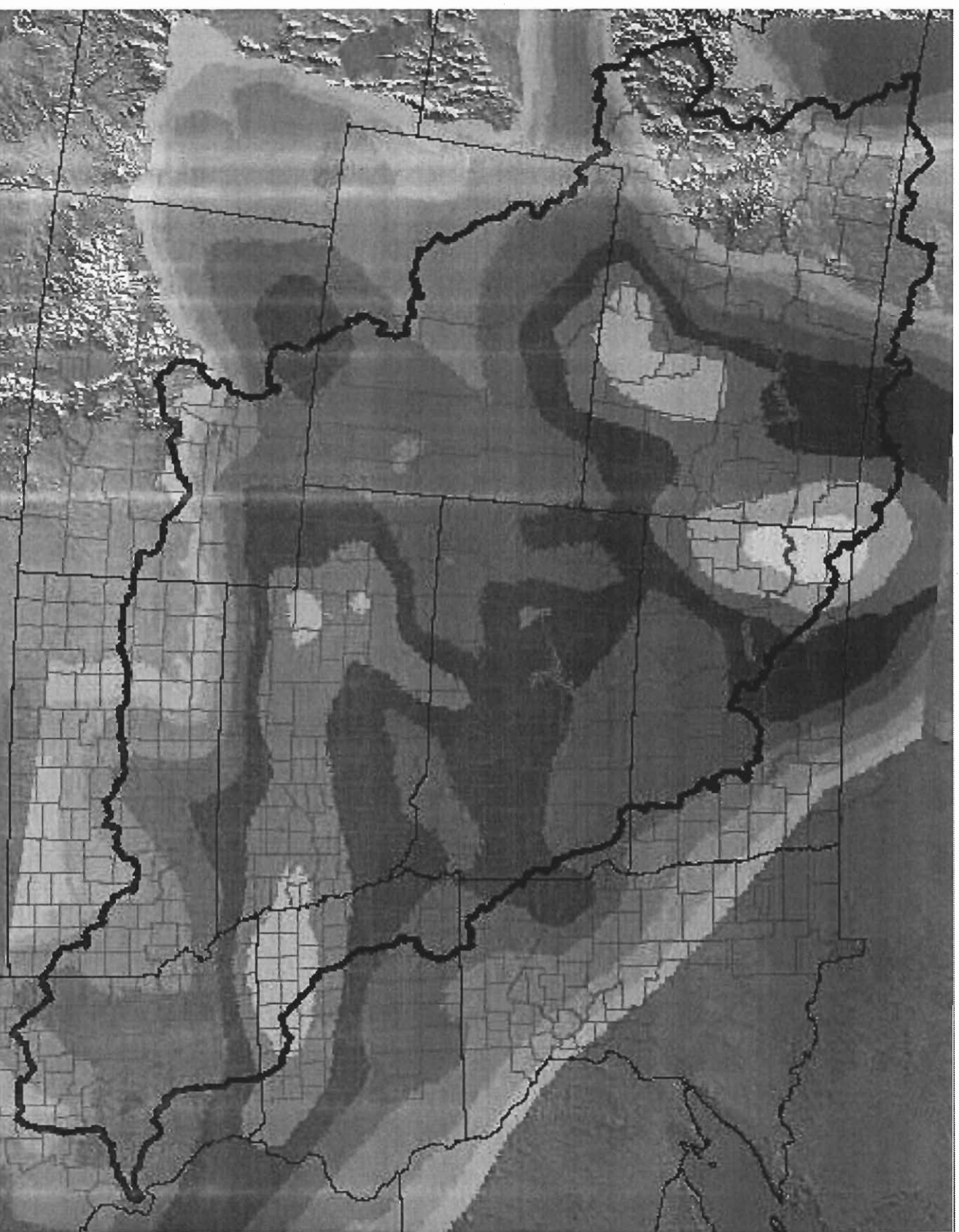


Figure 7. Rainfall on the Central Region of the United States for June 16, 2011.

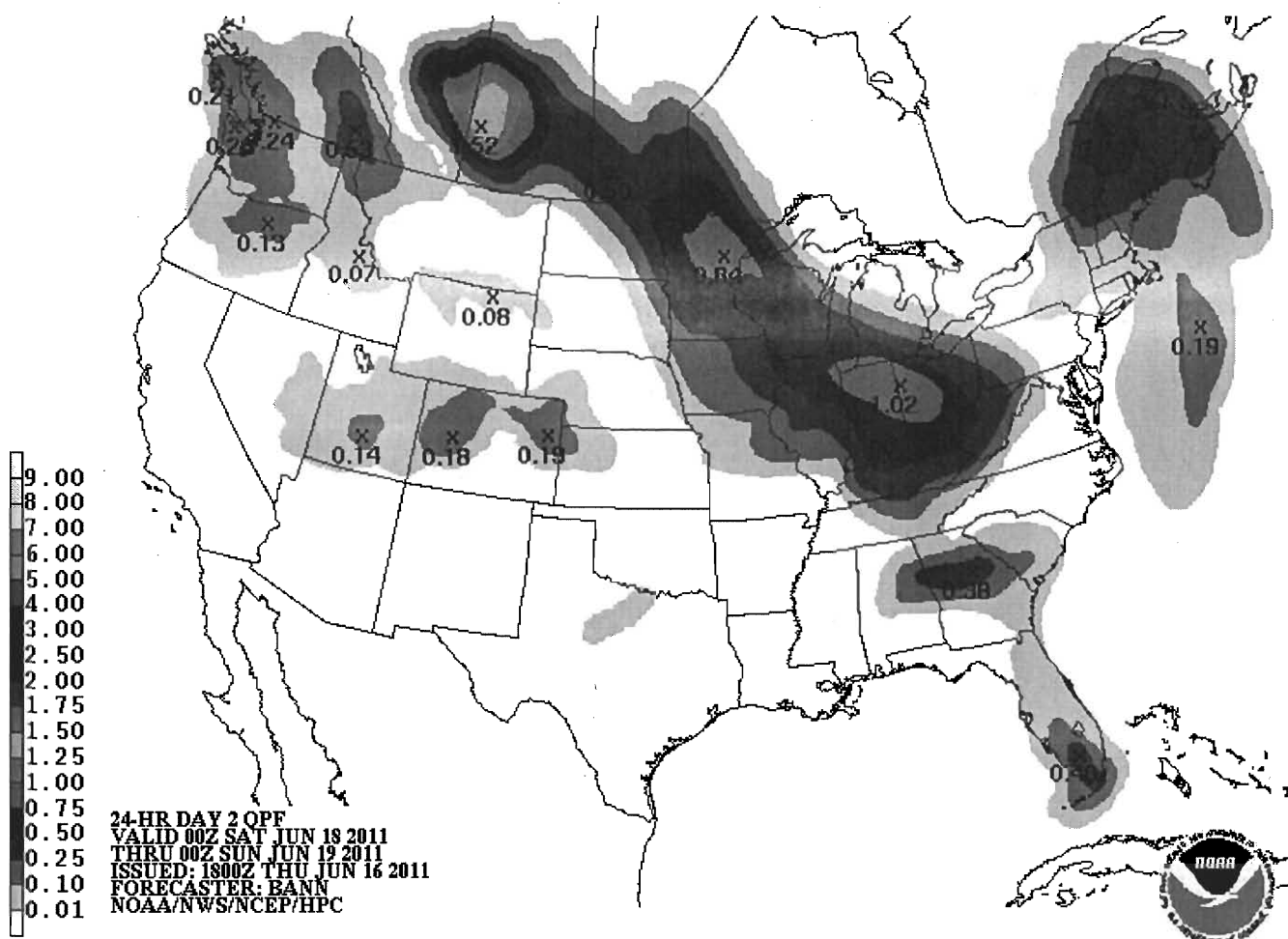


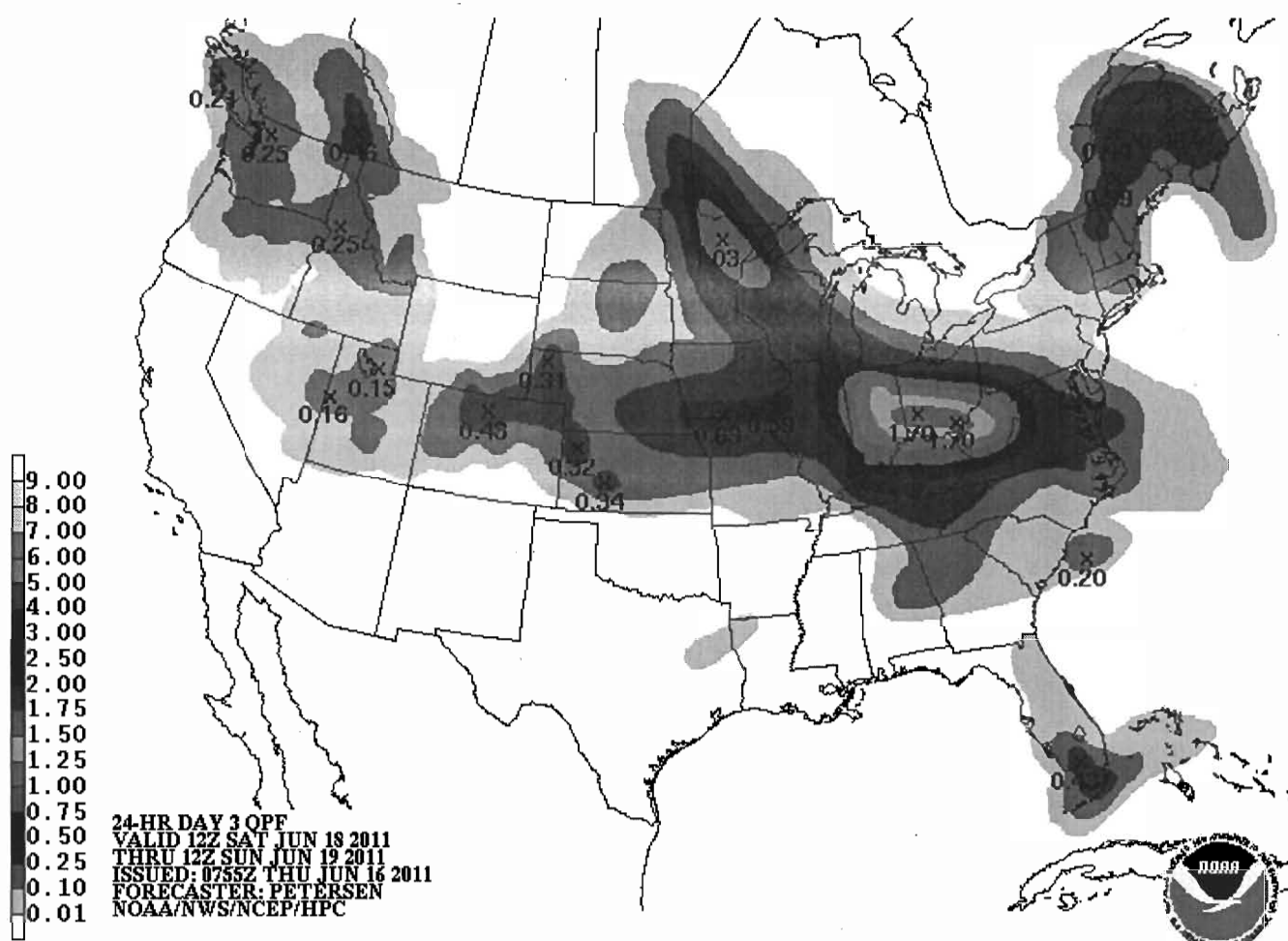
0.01 0.05 0.10 0.25 0.50 0.75 1.00 1.50 2.00 2.50 3.00 4.00 5.00 6.00 8.00 +

# **MBRFC 24-Hour Forecast Precipitation (inches)**

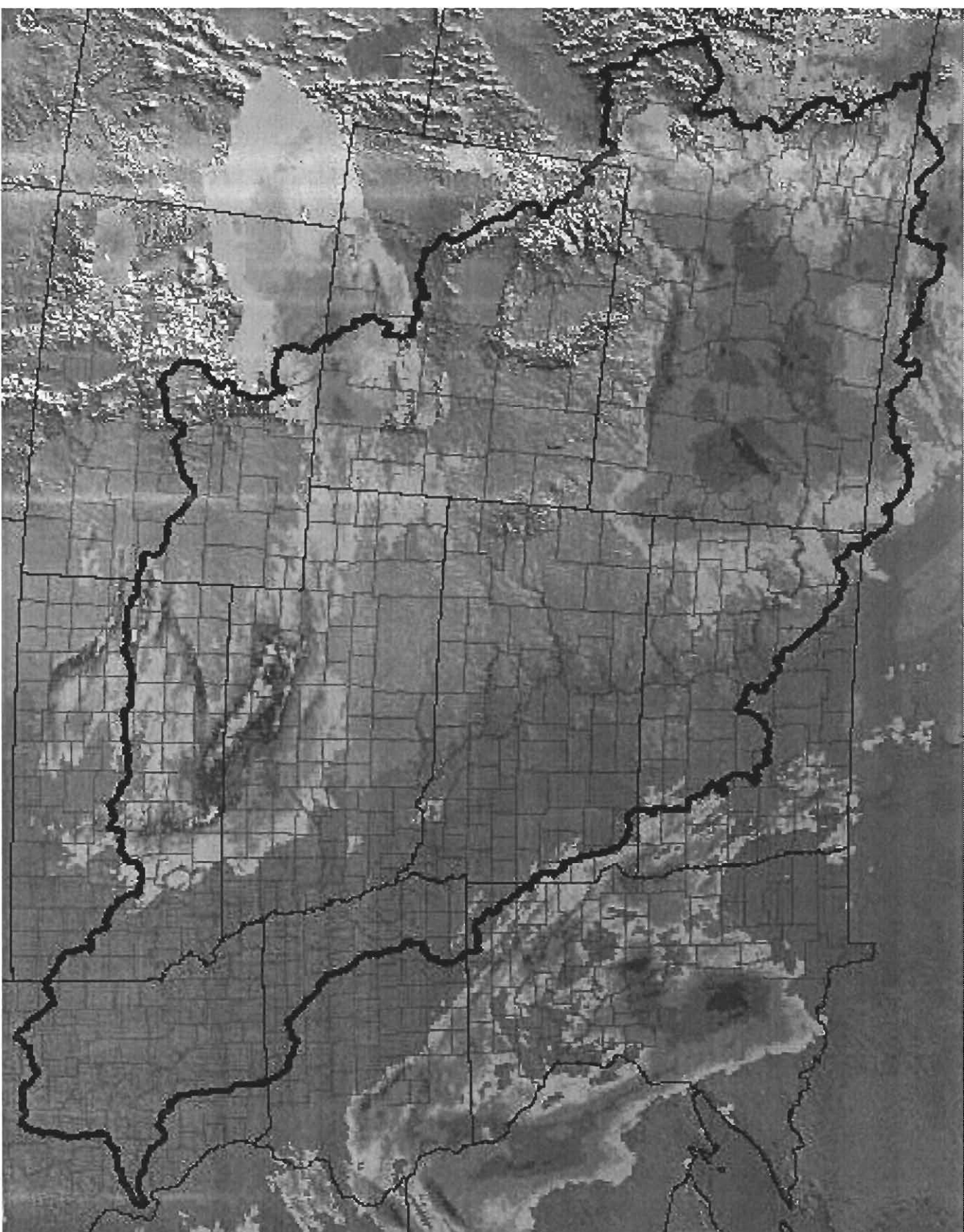
Ending: 6/17/2011 at 1:00PM CDT

7/8/2011 at 1:20 PM CDT









0.01 0.05 0.10 0.25 0.50 0.75 1.00 1.50 2.00 2.50 3.00 4.00 5.00 6.00 8.00 +

# MBRFC 24-Hour Gage Biased Estimated Rainfall (inches)

Ending: 6/16/2011 at 7:00AM CDT

7 Day Temperature Forecasts (High/Low)						
16-Jun-11						
Location	Thu	Fri	Sat	Sun	Mon	Tue
	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun
Helena, MT	60	66/40	67/45	65/46	69/46	73/48
Livingston, MT	63	65/41	71/42	64/45	68/44	72/43
Billings, MT	69	68/47	78/50	71/49	71/49	74/49
West Yellowstone, MT	54	56/31	61/35	60/36	62/36	68/37
Cody, WY	65	65/44	69/46	66/48	63/48	69/48
Sheridan, WY	66	66/48	75/47	70/49	67/49	70/48
Casper, WY	76	70/46	76/45	74/48	66/48	73/47
Laramie, WY	73	69/44	69/43	69/47	60/44	67/43



Wed
22-Jun
77/48
73/45
77/50
69/37
74/49
73/48
77/48
67/43

**From:** Brittany Konradi [bkonradi@iastate.edu]  
**Sent:** Thursday, June 16, 2011 2:06 PM  
**To:** Becky Kern  
**Subject:** Re: Weather Summary June 16  
**Attachments:** tempoutlook16\_june.xls

Here it is with your info, basically...

**Hydro Summary:**

Over the past 24 hours,  
General rainfall averaging 0.25" fell across much of Montana. Heavier rain fell across the Republican and mainstream Platte River Basins, generally averaging from 0.50" to 1.00". A few spots reported over 2.00" of rain in north central Kansas. Slightly increased flows downstream of North Platte Nebraska may result in slightly higher flow along the Platte. Stage forecasts as of 0900 do not take the Platte in flood in central Nebraska. A rainfall area (ongoing as of 1300) continues down into the Kansas City area with isolated heavy rain amounts of 1.00" possible since 0700 in northeast Kansas. See attached for 24-hour totals.

**Weather Synopsis:**

A series of large systems moves across the northern Rockies and along the upper Missouri River Basin over the next several days. This will bring continued chances for showers and thunderstorms, particularly for Montana, Wyoming, and North Dakota. Scattered showers and thunderstorms are anticipated Monday and Tuesday over much of the Missouri River Basin, but too much uncertainty exists to target potential heavy rain locations or amounts at this time. A drier period of about 48 hours appears to enter the Missouri River Basin beginning late Tuesday and Wednesday (mid next week). Warmer temperatures over the Rockies will likely increase snowmelt.

**The Day 1 QPF (from 700 hours Thursday to 700 hours Friday):**

Widespread rainfall is expected over much of the Missouri River Basin. Flash Flood/Flood watches are in effect for northern Wyoming, Eastern Montana and much of North Dakota. Heavier rainfall of 1.00" to 2.00" will impact the Garrison Dam and Fort Peck areas especially. Heavy rain (up to 1.50") is likely in the Yellowstone River Basin area of Wyoming/Montana. Lingering rainfall over eastern Kansas and western Missouri will continue to slide southeast dropping isolated 1.00" rain amounts. Severe weather is a good possibility over central and western Nebraska, especially during evening hours. Primary hazards large hail and damaging winds as a line of storm forms by mid evening. Isolated, brief tornadoes will be possible through sunset. General rainfall of less than 0.75" is expected over much of Nebraska with locally higher amounts of 1.00" to 2.00" possible. See attached.

**The Day 2 QPF (from 700 hours Friday to 700 hours Saturday):**

Locally heavy rain will be ongoing Friday morning and continue through Friday evening across eastern Montana and western North Dakota. Additional rainfall in excess of 1.00" is possible in some areas. Garrison Dam and Fort Peck Dam will be the recipients of initial runoff of rainfall in that region. The rainfall will extend down into the middle/lower Missouri, though slightly less intense in nature. Generally speaking, heavy rain will move north of the Canadian border by Saturday morning. See attached.

**The Day 3 QPF (from 700 hours Saturday to 700 hours Sunday):**

Heavy rain moves out of the region and is followed by drier and seasonally cool weather the rest of the day Saturday. Increasing rain chances will return to Montana/Wyoming by Sunday evening. Rainfall across the rest of the middle/lower Missouri Basin will be sporadic Saturday night and Sunday and generally light in nature.  
See attached.

Wind forecast for Fort Peck: West winds 5-15 mph today, becoming light and variable overnight. On Friday, winds become northwest and increase to 5-15 mph through the afternoon.

Wind forecast for Williston: Winds light and generally north today, becoming northeast overnight. By Friday afternoon, northwest winds increase to 15-25 mph with gusts around 25 mph.

Wind forecast for Garrison: Southeast winds 10-15 mph today and overnight winds become east. Friday winds are southeast, becoming southwest, and increase to 15-20 mph with gusts up to 20-25 mph.

Wind forecast for Oahe: Southeast winds 10-15 mph today, becoming southwest by late Friday morning. Winds become east through Friday afternoon and increase to 20-30 mph by Friday evening, with evening gusts up to 35 mph.

Temperature outlook of note:

Temperatures will start a warming trend over the Rockies, which will increase snowmelt.  
See attached temperature table.

--

Brittany Konradi

Undergraduate at Iowa State University, meteorology, music minor

Alpha Sigma Kappa Academic Chair

ISU AMS Outreach Chair



**NWO**

---

**From:** O'Hara, Thomas A NWO  
**Sent:** Thursday, June 16, 2011 8:35 PM  
**To:** McMahon, John R BG NWD; [REDACTED] NWD; Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; [REDACTED] NWO; Farhat, Jody S NWD02; [REDACTED] NWD; Blechinger, Erik T NWO; Farmer, Monique L NWO  
**Subject:** MAP for DVIDS interviews  
**Attachments:** Harrah's Map 2.pdf; Harrah's Map 1.pdf

ALCON

Attached are two maps for the interview location tomorrow. It is in the parking lot area by Harrah's Casino (Across the river. Take Dodge Street/I480 over the river, south on I29 (that part is still open) . There will be a HARRAH's exit. Follow the street into the Casino location (golf course on right). We will be set up near waters edge in the parking lot.

Please plan to arrive NLT 1130 - earlier if possible for USACE product interviews.

Any questions you can contact me below or on personal cell 402-250-7155

(Currently working Missouri Floodflight efforts. I will reply to your email as I can)  
BUILDING STRONG® Thomas A. O'Hara III Executive Officer Omaha District, U.S. Army Corps of Engineers  
1616 Capitol Avenue, Suite 9000  
(Attn: CENWO-EX-XA)  
Omaha, NE 68102-4901  
402-995-2004  
[thomas.a.ohara@usace.army.mil](mailto:thomas.a.ohara@usace.army.mil)

Google maps Harrah's Council Bluffs, near Council Bluffs,  
Pottawattamie, Iowa

Get Google Maps on your phone

Text the word "GMAPS" to 466453



A. Harrah's Council Bluffs Hotel &  
Casino

1 Harrah's Boulevard, Council Bluffs, IA  
(712) 329-6000

93 reviews





Harrah's Council Bluffs, near Council Bluffs,  
Pottawattamie, Iowa

Get Google Maps on your phone

Text the word "GMAPS" to 466453



- A. Harrah's Council Bluffs Hotel & Casino  
1 Harrah's Boulevard, Council Bluffs, IA  
(712) 329-6000  
93 reviews



**NWO**

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**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 5:57 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] L NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWO; Bertino, John J Jr NWO; Schenk, Kathryn M NWO; Ruch, Robert J COL NWO; Farhat, Jody S NWD02; Jordano, James J LTC NWO  
**Cc:** Oldham, Margaret NWO; Blechinger, Erik T NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO; Quinn, Kevin R NWO; Williamson, Eileen L NWO; [REDACTED] NWO  
**Subject:** Missouri River Aerial Photos - Blair NE to Ponca NE

Missouri River aerial flood photos taken 16 June from Blair to Ponca are located on branch shared drive at 2011\_Flood/Missouri River Aerial Photos/Mo River Blair to Ponca 16 June 2011. Photos are in directories by reach. There is increase in flooded area from photos taken several days ago but no significant expansion of flooding.

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED] (office)  
[REDACTED] (cell)



**NWO**

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 5:12 PM  
**To:** Schenk, Kathryn M NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWK;  
[REDACTED] NWK; [REDACTED] NWD; [REDACTED] NWK; [REDACTED]  
B NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED] NWK; [REDACTED]  
J NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED] NWK; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD02; Farhat, Jody S NWD02;  
[REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02;  
[REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02;  
[REDACTED] NWD02; [REDACTED] NWD02  
**Subject:** Photos of MO RIV from First National Bank Tower 42nd Floor - 15Jun11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Carlos Lazo (SPK working the MRJIC) and I went up to the 42 floor to the outside roof area of the First National Bank Tower in downtown Omaha and took photos of the Missouri River. Thanks to Monique Farmer for arranging with the First National Bank public affairs representative who met us with the building manager and provide escort.

I have uploaded the photos I took on a NWD ftp website for you to download if you wish.

FTP Download Instructions IE7 or IE8:

Click on link;

<ftp://ftp.usace.army.mil/usace/nwd/>

Go to "Page" in upper right toolbar of screen and click on scroll arrow;

Select "Open FTP Site in Windows Explorer"; wait a few seconds for the window to open

Highlight the folder "MO RIV 1stNatBK Tower 42nd Flr 15Jun11" that you want to download;

Arrow in highlighted area and then right click;

Select "Copy to folder";

Select a folder or location to copy folder to or create a new folder;

Click OK;

Download will begin showing a completion status box.

[REDACTED]

[REDACTED]

[REDACTED] cell

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** Quinn, Kevin R NWO  
**Sent:** Thursday, June 16, 2011 5:11 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Omaha Breakfast Optimist Club Speaker for July, 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody--YOU GOT IT. it is arranged; you will speak at 7:15 on July 21 for the Omaha Breakfast Optimist Club and then do the lunch at the Omaha Press Club. All details are below. If you need anything, let me know. kq

OMAHA PRESS CLUB INFO:

Hi Kevin,

What we're looking at is an Omaha Press club noon forum on the Missouri River dams and how they work. We would normally do this on July 21st but if that doesn't work it could be done any day, Monday through Friday, during the last two weeks of July. Our programs run from noon to one p.m. The first half hour is for the speakers presentation with the 2nd half hour for questions from our audience. The questions are written down and brought to the moderator to ask from the podium. I'm thinking of a program that takes a look at the history of the dams and how they have worked in this current situation.

If you could let me know in the next few days whether this will work for you that would be great. Thanks.

Gary Kerr      gary kerr [garyvkerr@yahoo.com]

\*\*\*\*\*  
\*\*\*\*\*

-----Original Message-----

From: George Eckert [mailto:gceckert@cox.net]  
Sent: Friday, June 10, 2011 3:23 PM  
To: Quinn, Kevin R NWO  
Subject: Omaha Breakfast Optimist Club Speaker for July, 2011

Dear Sir,

I was hoping to have a speaker from the Corps of Engineers speak to our group concerning the current flooding of the Missouri river.  
We meet on Thursday morning at 7:15 AM and end about 8:15 AM. Your part would be about 20 to 30 minutes.

Attendance is about 15 people.

We meet at:

Westside Community Center  
3534 S. 108 Street  
Omaha, NE

Sincerely,

George C. Eckert  
402-397-3811

PS: They serve a fantastic breakfast.

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Johnston, Paul T HQ@ NWO  
**Sent:** Thursday, June 16, 2011 5:02 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: River Residents' complaints

Jody,

Are you available to talk with Bob Watson tomorrow? Pick a time and I'll make the arrangements with him.

Paul

-----Original Message-----

From: Bob Watson [<mailto:bwatson@newstribune.com>]  
Sent: Thursday, June 16, 2011 3:56 PM  
To: Johnston, Paul T HQ@ NWO  
Cc: MRJIC  
Subject: River Residents' complaints

PAUL ----

((Or whoever else is responsible for Media Questions these days)) ----

We have talked with several Missouri River residents and farmers, who have complained that the Corps of Engineers BLEW IT this spring, holding on to water in the Upstream Reservoirs WAY TOO LONG, when you knew you had a DEEP SNOWPACK .... and that you could have avoided a lot of the current flooding concerns if you just had started releasing water into the lower Missouri when the river was at 10 feet instead of the current, higher levels.

((I'm pretty sure this isn't the first time you've heard this, or similar, complaint .... ))

1) Does the Corps have a reaction/comment to this complaint?

2) Can you show us how the numbers you had on snowpack and rainfall in the Upper Missouri Basin, and in the Mountains that feed the Upper Missouri, affected the decisions the Corps made on storing or releasing water from the Mainstem Dam reservoirs??

3) What part of the Corps' River Management duties control the decisions you've made this spring???

Please respond by e-mail, or call me Friday after 10 a.m. CDT at 573/761-0245.

Bob Watson  
Jefferson City News Tribune  
3:55 p.m.

6-16-2011

**NWO**

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 4:58 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED], [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] M SAW  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 16 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 16 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

fyi

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**16 June 2011**

We posted the updated reservoir forecast to the web this afternoon. We continue to make adjustments to Fort Randall releases to manage the Gavins Point pool level. Based on flow measurements below Gavins Point dam, we believe that the dam is currently releasing less than 150,000 cfs. The rating curves for the spillways are based on engineering formulas, so we are . continue to use measurements below all the dams to verify actual releases.

The anticipated peak releases remain the same: 65,000 cfs at Fort Peck, and 150,000 cfs at the lower 5 dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases remain at 65,000 cfs today and will be held at that level through the weekend. We expect to reduce those releases back to 60,000 cfs next week as inflows drop off.
- Garrison –145,000 cfs today, increasing to 150,000 cfs on Friday.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.
- Gavins Point – releases remain at 150,000 cfs.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 68%, down 52% from this year's peak

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 74%, down 46% from this year's peak

As of June 14

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 60% ydy

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 59% ydy



**NWO**

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**From:** MRJIC  
**Sent:** Thursday, June 16, 2011 4:10 PM  
**Subject:** Missouri River Joint Information Center 5 p.m. Call (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Reminder: The daily call will occur at 1700hrs/CT. Call in information is as follows:

877-336-1828

Access Code: [REDACTED]

Security Code: [REDACTED]

This call is intended for Congressional Delegation, Tribes, State Government, Local Government, and Press. Please do not distribute the number to the general public, the JIC is set up with email and call in accessibility to answer questions for the general public.

General format includes updates from the Hydrometeorological Center (HPC), Iowa Department of Transportation, Missouri Department of Transportation, Nebraska Department of Transportation, the Missouri River Basin Water Management Division, USACE Omaha District Emergency Operations Center, USACE Kansas City District Emergency Operations, followed by a Questions and Answer opportunity.

For bios of USACE staff on 5 p.m. call, please visit our website.

[http://www.nwo.usace.army.mil/html/op-e/flood2011/Flood Press Packet Jun 2011 QR.pdf](http://www.nwo.usace.army.mil/html/op-e/flood2011/Flood%20Press%20Packet%20Jun%202011%20QR.pdf)

Thank you.

The Missouri River Joint Information Center (MRJIC)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 4:00 PM  
**To:** [REDACTED] L NWO; [REDACTED] NWO; [REDACTED] NWO; Schenk, Kathryn  
M NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02; Bertino, John  
J Jr NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO  
**Subject:** Flood Report #14 Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Releases from Fort Peck Dam continue at 65,000 cfs with 13,000 cfs through the power plants and 52,000 through the spillway. Fort Peck pool elevation was 2252.30 at 0700 today. No issues were reported on the dam or spillway in the last 24 hours. Primary power has been restored to the spillway. Our thanks to Western Area Power Administration, Fort Peck line crew for assisting us in this effort.

We verified the top elevation of the inner chamber of the flood control tunnel ring gates as 2255.0. We will be forwarding drawings later. If the lake level were to reach this level water would be released through the outlet works. We are investigating what the ramifications of this are. Reservoir pool elevations are not predicted to get this high at this time.

[REDACTED]  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
PH: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 2:45 PM  
**To:** [REDACTED] NWS; [REDACTED] NWD02  
**Cc:** [REDACTED] NWS; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02  
**Subject:** Re: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

For what its worth, I understand the problem at libby and I don't think it would be helpful to your issue at Garrison. That said getting the technical people talking is always good and appreciate the cooperation.

-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWS  
**To:** [REDACTED] A NWD; [REDACTED] NWD02  
**Cc:** [REDACTED] M NWS; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02  
**Sent:** Thu Jun 16 12:37:16 2011  
**Subject:** FW: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] and [REDACTED],

Thanks for the heads up on this. Yes, Libby is the NWS project with the airflow issue. [REDACTED] (Chief of our Hydraulic Engineering Section) will give Kevin a call later today to tell him about it.

[REDACTED]

Chief, Hydrology & Hydraulics Branch  
U.S. Army Corps of Engineers, Seattle District

[REDACTED]  
[REDACTED] (fax)

-----Original Message-----

**From:** [REDACTED] NWS  
**Sent:** Thursday, June 16, 2011 11:52 AM  
**To:** [REDACTED] NWS  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Yes, we will call him today.

-----Original Message-----

**From:** [REDACTED] NWS  
**Sent:** Thursday, June 16, 2011 11:50 AM  
**To:** [REDACTED] NWS  
**Subject:** Fw: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Hi [REDACTED] - would you (and/or Brendan) give [REDACTED] a call to tell him about Libby?

Thanks,

----- Original Message -----

From: [REDACTED] NWD  
To: [REDACTED] NWD02; [REDACTED] NWO  
Cc: Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWS; [REDACTED] NWS  
Sent: Thu Jun 16 10:42:08 2011  
Subject: Re: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

NWS may be talking about Libby where they have an airflow issue for their RO. The only other powerhouses would be chief joe and Albeni Falls - I don't think either of those projects have flood tunnels,

I am HIGHLY supportive of closing RO to inspect if you get a chance, rather than waiting till July or later. I've been promoting that since we first started talking about this. All the Operation manuals assume everything works as designed. Obviously they isn't always the case. Taking the opportunity to check soon makes sense to me.

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED] NWD02  
To: [REDACTED] NWO  
Cc: [REDACTED] NWD02; [REDACTED] A NWD; [REDACTED] NWO; [REDACTED] NWS;  
[REDACTED] NWS  
Sent: Thu Jun 16 10:34:16 2011  
Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and [REDACTED] Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 16, 2011 11:46 AM  
To: [REDACTED] NWD; [REDACTED] NWO  
Cc: [REDACTED] NWD02  
Subject: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

...continuing with the Garrison flood tunnels...

We are exploring our options at Garrison Dam with splitting releases between the flood tunnels adjacent to the power house and the spillway. Garrison has 3 large flood tunnels with a separate but adjacent stilling basin next to the 5 units for the power house.

After high flows in 1997 that were considerably lower than the current releases through the flood tunnels, we experienced cavitation problems. At some point during these extended high flows we would like to transfer all of the flood tunnel flow to the spillway and visually inspect the tunnels.

[REDACTED] structural engineer from Seattle District, was at the projects office earlier this year and had indicated that the Seattle District could not discharge, at least at some of their dams, from the spillway without also discharging from the flood tunnels due to possible problems at the power house.

We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

[REDACTED]  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 2:37 PM  
**To:** [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; Farhat, Jody S NWD02  
**Subject:** Re: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Agree decision is complex and feet on the ground are best positioned to influence these decisions. My point is if the district can do it safely and inspect the tunnels on a quick and safe turnaround, they will be much better informed to make those decisions about tradeoffs associated with flow distribution.

[REDACTED]  
-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWD02  
**To:** [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWD; [REDACTED] NWO; Farhat, Jody S NWD02  
**Sent:** Thu Jun 16 12:01:54 2011  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Spillway pilot channel has eroded significantly. The Surveillance teams have been taking daily readings from a staff gage at the spillway stilling basin west wall. As of yesterday the elevation was approximately 1687. (Tailwater readings from the Water Management reports are approx. 1683, but I don't know where the measurements are taken.)

The spillway stilling basin level was dropping consistently while I was there last week. Elevations are recorded in daily reports developed by the on-site Geotech / Dam Safety person, if rates are useful. Also, bank erosion along the spillway channel has slowed down and the channel looked pretty calm when I saw it yesterday, during what I believe was the maximum spillway release to date.

I don't know if there is recent aerial imagery. Hopefully Kevin and Dave Sobczyk can find out from the people at the project.

I realize that decisions on distributing the flows between the flood tunnels and spillway are complex, and multiple factors must be considered. I'm very pleased that dialogue is occurring, to help everyone make the best possible decisions.

[REDACTED]  
-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 12:50 PM  
**To:** [REDACTED] NWD02; [REDACTED] NWO

Cc: Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO  
Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], the only issue with putting all the flow through the spillway (other than will the slab hold together) would be how much the pilot channel below the spillway has eroded. If we put 100,000 cfs-plus down the spillway and the pilot channel has not suitably eroded, we could be flooding the fish hatchery (and maybe some project infrastructure) and it could impact the location of the hydraulic jump in a negative manner. I think that if we're going to contemplate putting all this flow through the spillway, we need to talk with the project first and see what impacts they can live with from higher flows out of the spillway and run it up the chain after that. Before we do that though, we need to get an idea of the impact we're talking about.

Kevin, do you have a sense of how much the spillway pilot channel has eroded, if any? If we have a tailwater elevation at the stilling basin, Jesse set up a simple RAS model and we could model the existing flow and approximate size of erosion to get that tailwater, and then compute increase in elevation due to increases in outflow. We could also see how much the jump might move (if we could get an approximate location of the jump now, that would help greatly).

Do we have any recent aerial imagery of the areas downstream of the dam, including outlet works and spillway? If not, can we acquire?

[REDACTED]  
-----Original Message-----

From: [REDACTED] NWD02  
Sent: Thursday, June 16, 2011 12:34 PM  
To: [REDACTED] NWO  
Cc: Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] L NWO; [REDACTED] NWS;  
[REDACTED] NWS  
Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and [REDACTED] Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

[REDACTED]  
-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 16, 2011 11:46 AM

To: [REDACTED] A NWD; [REDACTED] NWO  
Cc: Berre, Laila M NWD02  
Subject: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
...continuing with the Garrison flood tunnels...

We are exploring our options at Garrison Dam with splitting releases between the flood tunnels adjacent to the power house and the spillway. Garrison has 3 large flood tunnels with a separate but adjacent stilling basin next to the 5 units for the power house.

After high flows in 1997 that were considerably lower than the current releases through the flood tunnels, we experienced cavitation problems. At some point during these extended high flows we would like to transfer all of the flood tunnel flow to the spillway and visually inspect the tunnels.

[REDACTED], structural engineer from Seattle District, was at the projects office earlier this year and had indicated that the Seattle District could not discharge, at least at some of their dams, from the spillway without also discharging from the flood tunnels due to possible problems at the power house.

We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

[REDACTED]  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

From: [REDACTED] NWS  
Sent: Thursday, June 16, 2011 2:37 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: [REDACTED] NWS; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02  
Subject: FW: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] and [REDACTED],

Thanks for the heads up on this. Yes, Libby is the NWS project with the airflow issue. [REDACTED] (Chief of our Hydraulic Engineering Section) will give Kevin a call later today to tell him about it.

[REDACTED].  
Chief, Hydrology & Hydraulics Branch  
U.S. Army Corps of Engineers, Seattle District

[REDACTED]  
[REDACTED] (fax)

-----Original Message-----

From: [REDACTED] NWS  
Sent: Thursday, June 16, 2011 11:52 AM  
To: [REDACTED] NWS  
Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Yes, we will call him today.

-----Original Message-----

From: [REDACTED] NWS  
Sent: Thursday, June 16, 2011 11:50 AM  
To: [REDACTED] NWS  
Subject: Fw: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Hi [REDACTED] - would you (and/or Brendan) give Kevin a call to tell him about Libby?

Thanks,  
[REDACTED]

----- Original Message -----

From: [REDACTED] NWD  
To: [REDACTED] NWD02; [REDACTED] NWO  
Cc: Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWS; [REDACTED] NWS  
Sent: Thu Jun 16 10:42:08 2011  
Subject: Re: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

[REDACTED]  
NWS may be talking about Libby where they have an airflow issue for their RO. The only other powerhouses would be chief joe and Albeni Falls - I don't think either of those projects have flood tunnels,

I am HIGHLY supportive of closing RO to inspect if you get a chance, rather than waiting till July or later. I've been promoting that since we first started talking about this. All the Operation manuals assume everything works as designed. Obviously they isn't always the case. Taking the opportunity to check soon makes sense to me.

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED] NWD02

To: [REDACTED] NWO

Cc: Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWS;  
[REDACTED] NWS

Sent: Thu Jun 16 10:34:16 2011

Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED], I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and [REDACTED] Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

[REDACTED]  
-----Original Message-----

From: [REDACTED] NWO

Sent: Thursday, June 16, 2011 11:46 AM

To: [REDACTED] NWD; [REDACTED] NWO

Cc: [REDACTED] NWD02

Subject: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
...continuing with the Garrison flood tunnels...

We are exploring our options at Garrison Dam with splitting releases between the flood tunnels adjacent to the power house and the spillway. Garrison has 3 large flood tunnels with a separate but adjacent stilling basin next to the 5 units for the power house.

After high flows in 1997 that were considerably lower than the current releases through the flood tunnels, we experienced cavitation problems. At some point during these extended high

flows we would like to transfer all of the flood tunnel flow to the spillway and visually inspect the tunnels.

[REDACTED], structural engineer from Seattle District, was at the projects office earlier this year and had indicated that the Seattle District could not discharge, at least at some of their dams, from the spillway without also discharging from the flood tunnels due to possible problems at the power house.

We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

[REDACTED]  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** [REDACTED]@fws.gov  
**Sent:** Thursday, June 16, 2011 2:13 PM  
**To:** [REDACTED] NWD02  
**Cc:** [REDACTED] NWO; Aron, Carol; Hale, Carol; [REDACTED] NWO; [REDACTED] NWK; Scott, Charlie; Blechinger, Erik T NWO; Jordan, George; Maddux, Henry; Ledwin, Jane; [REDACTED] NWK; Farhat, Jody S NWD02; [REDACTED] NWK; Gamble, Larry; [REDACTED] NWK; [REDACTED] NWO; [REDACTED] NWO; mike\_george@fws.gov; [REDACTED] NWO; [REDACTED] D NWK; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWK; [REDACTED] NWO; Hill, Tracy  
**Subject:** RE: CORE Team - June 2011 Agenda (UNCLASSIFIED)  
**Importance:** High

Good points Doug,

It will be important for us to cover all of the aspects of post flood, from policy, to science, to future management. History has shown that the windows for handling these issues, post events such as what is happening here on the Missouri,, Katrina etc. have very small openings. By beginning the discussions now with the people as close to this as the members of the CORE are, we can help shape a better future for this basin.

I recognize some members may not be present due to ongoing efforts, yet if we wait until post flood the window will already be starting to close and society will be heading in another direction.

Looking forward to comprehensive discussions so we can be prepared.

[REDACTED]  
Acting Missouri River Coordinator - USFWS USACE Gavins Point PO Box 710 Yankton SD 57078

[REDACTED] cell

Wayne NelsonStastny@fws.gov

"When you put your hand in a flowing stream, you touch the last that has gone before and the first of what is still to come." Leonardo Da Vinci

"Latka, Doug C NWD02" <Doug.C.Latka@nwd02.usace.army.mil>

06/16/2011 10:45 AM To

"[REDACTED] NWO" <[REDACTED]@usace.army.mil>, "Aron, Carol" <Carol Aron@fws.gov>, "[REDACTED] NWK" <[REDACTED]@usace.army.mil>, "[REDACTED] NWK" <[REDACTED]@usace.army.mil>, "Farhat, Jody S NWD02" <Jody.S.Farhat@usace.army.mil>, "[REDACTED] NWK" <[REDACTED]@usace.army.mil>, "[REDACTED] NWO" <[REDACTED]@usace.army.mil>, "Gamble, Larry" <Larry R Gamble@fws.gov>, "Hale, Carol" <Carol Hale@fws.gov>, "[REDACTED] NWD02" <[REDACTED]@usace.army.mil>, "Hill, Tracy" <Tracy Hill@fws.gov>, "Jordan, George" <George Jordan@fws.gov>, "[REDACTED] NWO" <[REDACTED]@usace.army.mil>, "[REDACTED] D NWO" <[REDACTED]@usace.army.mil>, "Ledwin, Jane" <Jane Ledwin@fws.gov>, "Maddux, Henry"

<Henry Maddux@fws.gov>, "Nelson-Stastny, Wayne" <Wayne NelsonStastny@fws.gov>, "[REDACTED]  
NWO" <Mary.S.Roth@usace.army.mil>, "Scott, Charlie" <Charlie Scott@fws.gov>, "[REDACTED]  
NWO" <[REDACTED]@usace.army.mil>, "[REDACTED] NWK"  
<[REDACTED]@usace.army.mil>, "[REDACTED] NWO"  
<[REDACTED]@usace.army.mil>, "[REDACTED] NWK" <[REDACTED]@usace.army.mil> cc  
<mike\_george@fws.gov>, "Blechinger, Erik T NWO" <Erik.T.Blechinger@usace.army.mil>, "[REDACTED],  
[REDACTED] NWK" <[REDACTED]@usace.army.mil> Subject  
RE: CORE Team - June 2011 Agenda (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

All,  
I think the Agenda should focus on how we plan to document ecosystem  
attributes post flood. Do we have the people/contractors/studies in place to  
document ecosystem changes that may have taken place. As an example we may  
find sandbars off the main channel from Sioux City all the way to Kansas  
City. Will we try and survey for terns and plovers in these locations? Is the  
existing population assessment program sufficient to document potential  
changes in the fish community age structure? I'm sure there are many more  
questions to be flushed out and now is the time to align for battle.  
Doug

-----Original Message-----

From: Peitz, Stacie M NWO  
Sent: Thursday, June 16, 2011 9:59 AM  
To: Aron, Carol; [REDACTED] NWK; [REDACTED] NWK; Farhat, Jody S  
NWD02; [REDACTED] NWK; [REDACTED] NWO; Gamble, Larry; Hale,  
Carol; [REDACTED] NWD02; Hill, Tracy; Jordan, George; [REDACTED],  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD02; Ledwin, Jane; Maddux,  
Henry; Nelson-Stastny, Wayne; [REDACTED] NWO; [REDACTED] NWO; Scott,  
Charlie; [REDACTED] NWO; [REDACTED] NWK; [REDACTED]  
NWO; Wankum, Robin D NWK  
Cc: [mike\\_george@fws.gov](mailto:mike_george@fws.gov); Blechinger, Erik T NWO; White, Lindsey M NWK  
Subject: CORE Team - June 2011 Agenda (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: FOUO

Good Morning,

The agenda for the June 21-22, 2011 meeting of the CORE Team is attached.  
Please note, the meeting will be held in Salon A at the Marriott Kansas City  
Airport. The MRRIC facilitation team meeting will be the following two days  
in the same meeting room.

[REDACTED] has invited the team to a cookout at his home Wednesday night.  
Please RSVP to this email by noon on Monday if you plan to attend the  
cookout, so Steve can get a tentative head count.

Thank you ~ [REDACTED]

[REDACTED]  
US Army Corps of Engineers  
Office Automation Tech  
MRRP - ISP  
T&E Section  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 2:09 PM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] LRH; [REDACTED] LRH; [REDACTED] MVM; [REDACTED] LRH  
**Cc:** [REDACTED] NWO; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD-OMAHA; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] RMC; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] E MVD; DLL-CELRD-RBW; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] SAW  
**Subject:** Missouri River Basin Water Management Division Situation Report of 6-16-11 (UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-16-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] Eileen,

Today's NWD Water Management situation report is attached.

[REDACTED]  
Missouri Basin Water Managment Division  
Northwestern Division  
Corps of Engineers  
[REDACTED]  
[REDACTED]@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

## Missouri River Basin Water Management Situation Report – 6-16-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. The relatively high inflows that have been coming into Fort Peck and Garrison Reservoirs are beginning to drop down to the release values, as several days have passed since the rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/16/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	71.0	65.9	2250	2252.3	0.1
Garrison	164.0	140.2	1854	1853.6	0.0
Oahe	159.0	150.4	1620	1618.6	-0.1
Big Bend	150.0	148.4	1423	1419.6	-0.1
Fort Randall	152.0	143.1	1375	1363.6	0.1
Gavins Point	153.0	105.1	1210	1207.6	0.1

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. An issue surfaced yesterday that required the spillway at Fort Randall to be shut and the flood control tunnels to be used. Repairs have been made and at least a portion of the spillway is now being used.



**Table 2. Reservoir Storage Data (through 0000 hrs 6/16/11)**

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	19,019	18,463	-556	971	-57
Garrison	23,696	23,821	125	1,489	8
Oahe	22,605	23,137	532	1,102	48
Big Bend	1,608	1,798	190	60	100
Fort Randall	4,309	5,418	1,109	985	100
Gavins Point	382	450	68	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. The release from Fort Peck was increased to 65 kcfs last Sunday, June 12, and will be held at that level for the next few days before it is returned to 60 kcfs. Releases 1 week out from all six reservoirs will be at the currently anticipated maximum releases at the other five reservoirs. At this time, only Fort Randall is not at the currently forecasted maximum, as the Gavins Point Reservoir is running a little higher than desired. Full listing of the data through mid-July is available at:

<http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/16/11)**

Reservoir	Yesterday kcfs	Forecast Today kcfs	7 days out 22 June kcfs	14 days out 29 June kcfs	Pre-2011 Record kcfs
Fort Peck	65.9	65	60	60	35
Garrison	140.2	145	150	150	65
Oahe	150.4	150	150	150	59
Big Bend	148.4	150	150	150	74
Fort Randall	143.1	143	148	148	67
Gavins Point	105.1	150	150	150	70

## River Conditions

Levees have been constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases move through their downstream reaches and inflows from the downstream reaches and localized precipitation joins these high releases. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/16/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.3	20.6	mid-Jun
Pierre, SD	13	18.9	18.7	mid-Jun
Sioux City, IA	30	33.0	35-37	mid-Jun thru July
Decatur, NE	35	37.8	40-42	mid-Jun thru July
Omaha, NE	29	33.2	34-36	mid-Jun thru July
Nebraska City, NE	18	25.9	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.6	27-32	mid-Jun thru July
Kansas City, MO	32	25.7	30-39	mid-Jun thru July
Waverly, MO	20	23.8	27-31	mid-Jun thru July
Boonville, MO	21	20.9	27-33	mid-Jun thru July
Hermann, MO	21	21.6	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still about 3 feet below the constructed levee crests.

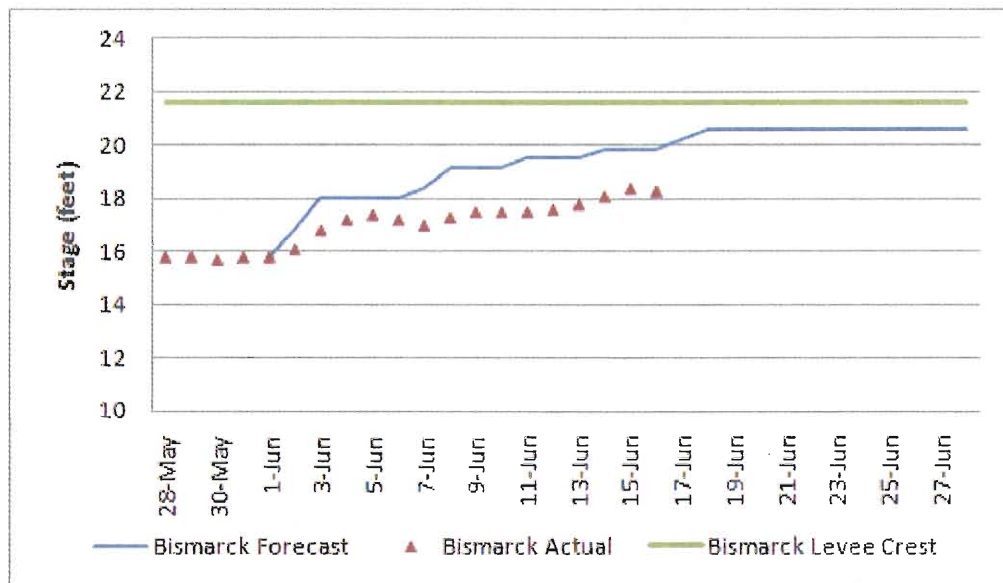


Figure 1. Missouri River stages at Bismarck, North Dakota.

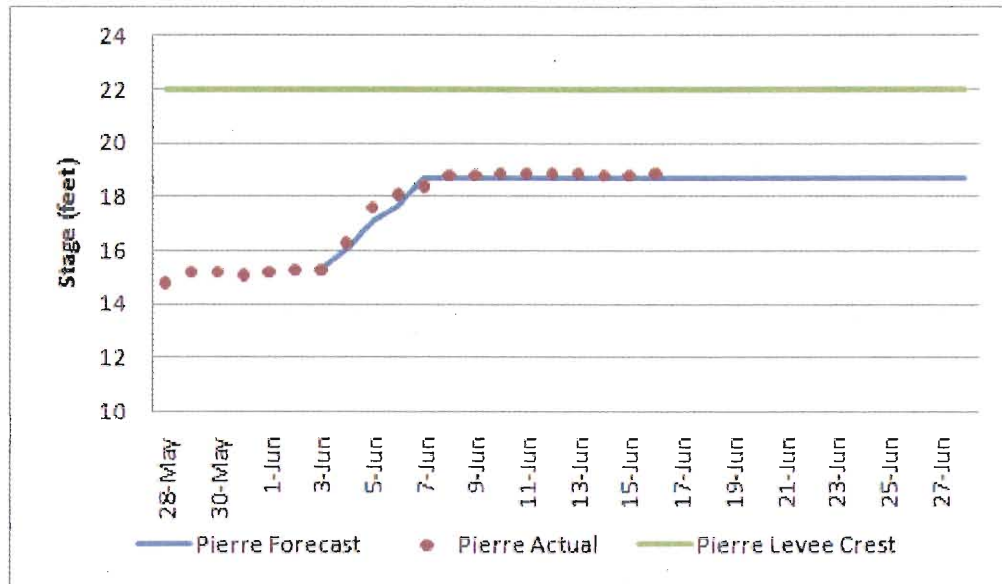


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and western Nebraska. Inflows from the heavier forecasted areas would drain into the five lower reservoirs in the System. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

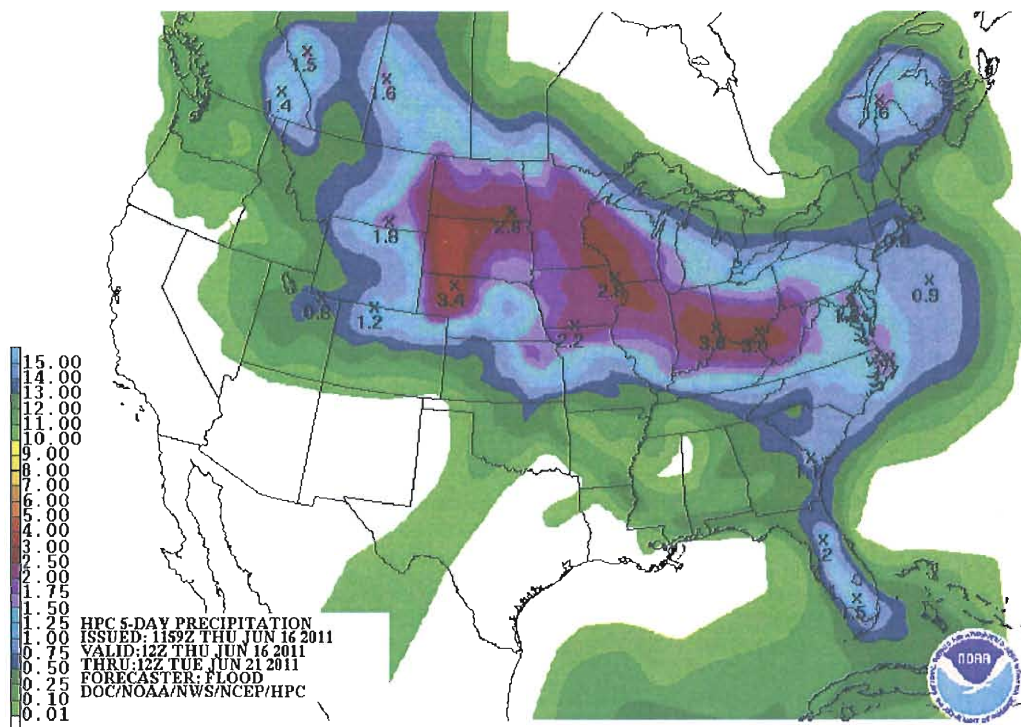
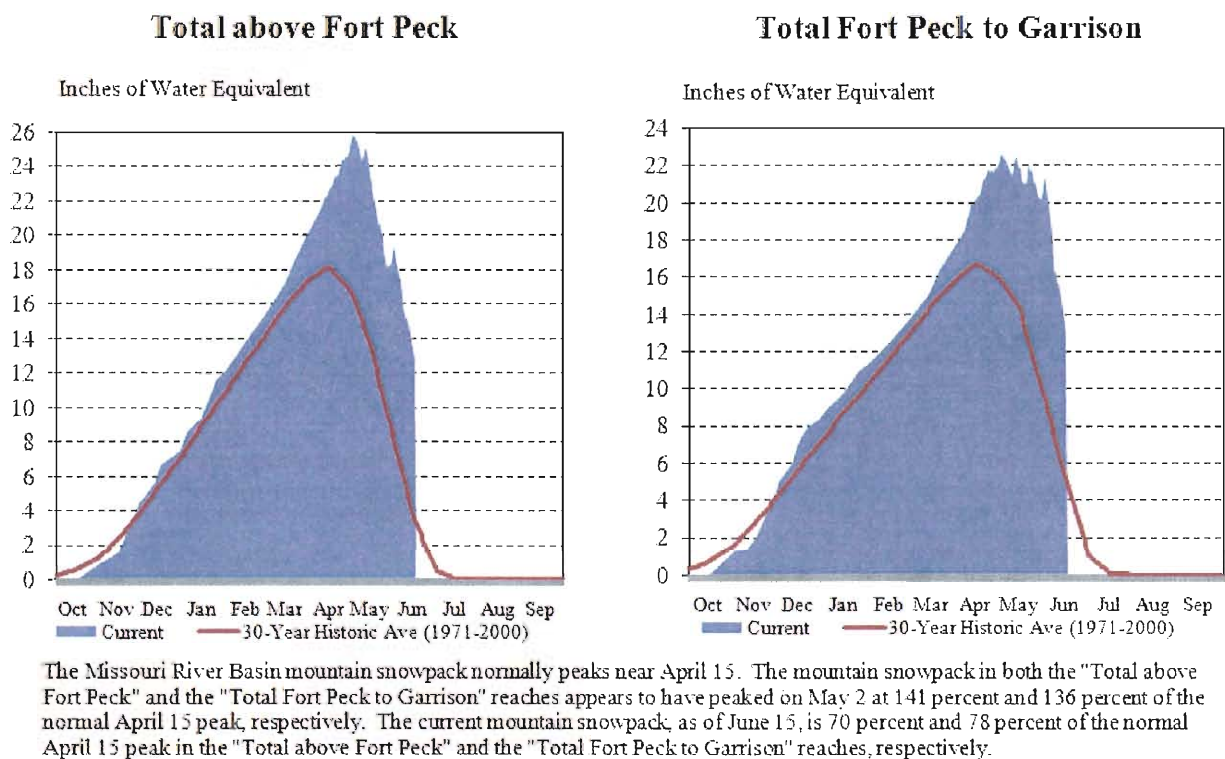


Figure 3. 5-day total QPF ending 0700 Tuesday, June 21, 2011.



June 15, 2011

Provisional data. Subject to revision.

Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 14, 2011.

## Current Actions and Notable Information

Levee construction for six cities has been completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. The most recent of these levees, the Hamburg levee, has also been completed. The failure of this levee occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is now above the 2010 maximum.

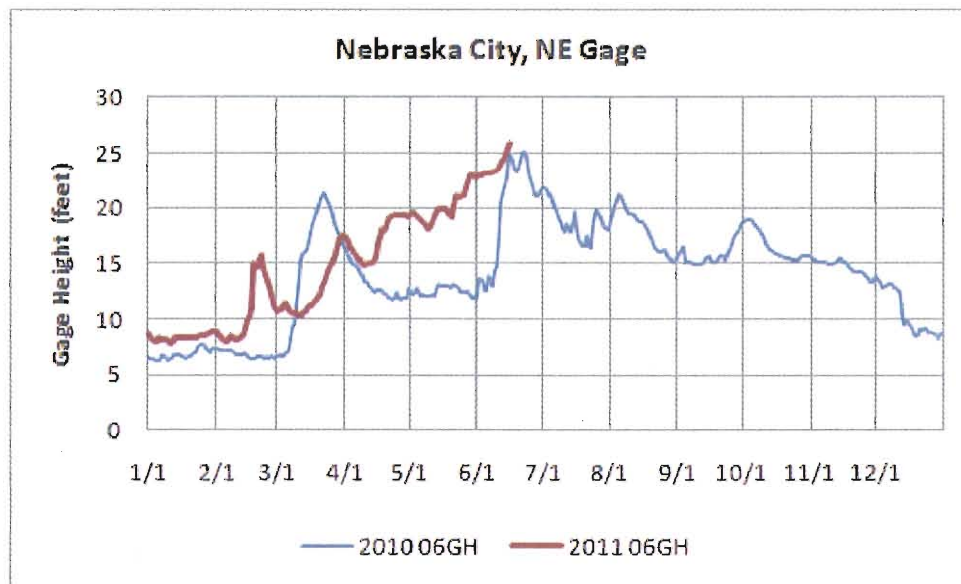


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri Monday, June 13. This location is across the river from Rulo, Nebraska. The gage plot for this location is shown below as Figure 6. Another factor, such as duration of water against the levee or back-to-back years with water against the levee appears to be playing a role in the failure of this levee as well as the levee near Hamburg.



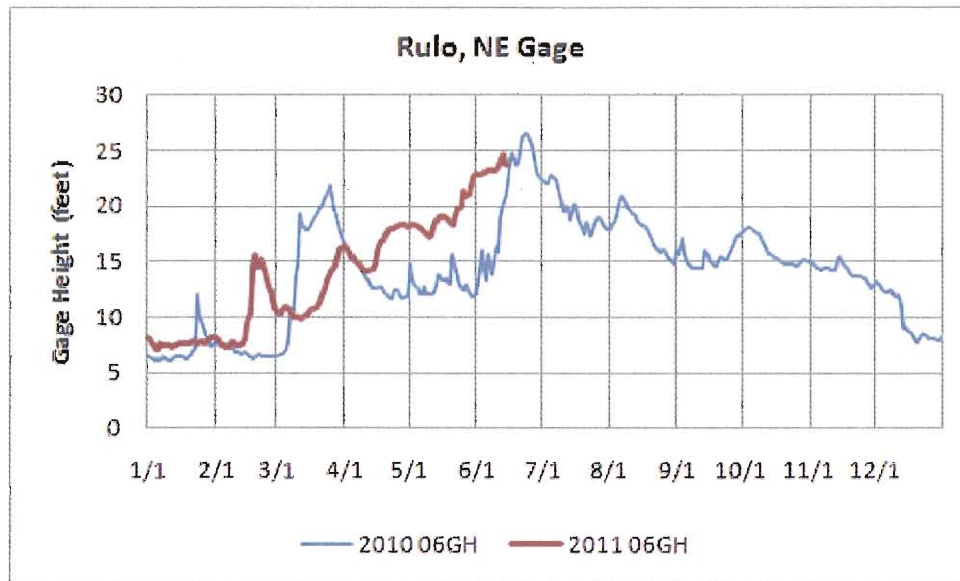


Figure 6. River stages at Rulo, Nebraska for 2010 and 2011.

Relatively little rain fell in the Missouri river basin yesterday. The exceptions are extensive rains over much of eastern Montana and heavier rains in an area of Nebraska and Kansas that drain into the Kansas River where the Kansas City District is continuing to evacuate water from those reservoirs with considerable water remaining in their flood control pools. Figure 7 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

NWS Central Region: Current 1-Day Observed Precipitation  
Valid at 6/16/2011 1200 UTC- Created 6/16/11 17:41 UTC

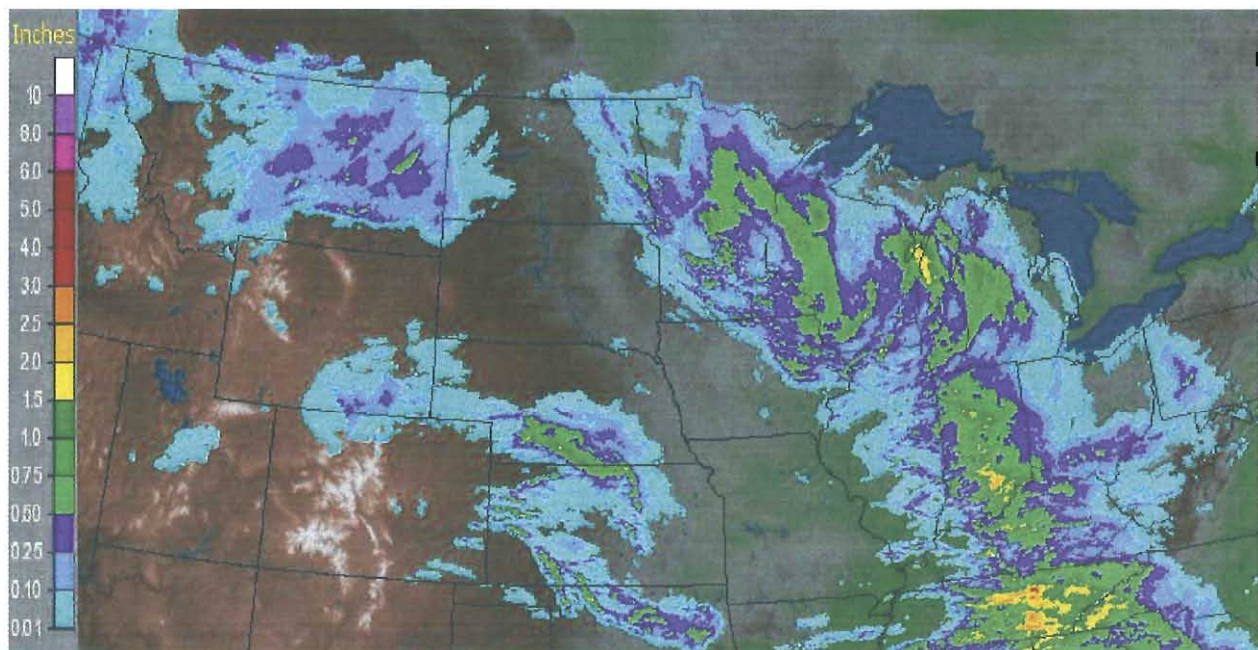


Figure 7. Rainfall on the Central Region of the United States for June 16, 2011.

**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 2:02 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWD; [REDACTED] NWO; Farhat, Jody S NWD02  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Spillway pilot channel has eroded significantly. The Surveillance teams have been taking daily readings from a staff gage at the spillway stilling basin west wall. As of yesterday the elevation was approximately 1687. (Tailwater readings from the Water Management reports are approx. 1683, but I don't know where the measurements are taken.)

The spillway stilling basin level was dropping consistently while I was there last week. Elevations are recorded in daily reports developed by the on-site Geotech / Dam Safety person, if rates are useful. Also, bank erosion along the spillway channel has slowed down and the channel looked pretty calm when I saw it yesterday, during what I believe was the maximum spillway release to date.

I don't know if there is recent aerial imagery. Hopefully Kevin and Dave Sobczyk can find out from the people at the project.

I realize that decisions on distributing the flows between the flood tunnels and spillway are complex, and multiple factors must be considered. I'm very pleased that dialogue is occurring, to help everyone make the best possible decisions.

[REDACTED]

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 12:50 PM  
**To:** [REDACTED] NWD02; [REDACTED] NWO  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], the only issue with putting all the flow through the spillway (other than will the slab hold together) would be how much the pilot channel below the spillway has eroded. If we put 100,000 cfs-plus down the spillway and the pilot channel has not suitably eroded, we could be flooding the fish hatchery (and maybe some project infrastructure) and it could impact the location of the hydraulic jump in a negative manner. I think that if we're going to contemplate putting all this flow through the spillway, we need to talk with the project first and see what impacts they can live with from higher flows out of the spillway and run it up the chain after that. Before we do that though, we need to get an idea of the impact we're talking about.

[REDACTED], do you have a sense of how much the spillway pilot channel has eroded, if any? If we have a tailwater elevation at the stilling basin, Jesse set up a simple RAS model and we could model the existing flow and approximate size of erosion to get that tailwater, and then compute increase in elevation due to increases in outflow. We could also see how much the jump might move (if we could get an approximate location of the jump now, that would help greatly).

Do we have any recent aerial imagery of the areas downstream of the dam, including outlet works and spillway? If not, can we acquire?

[REDACTED]

-----Original Message-----

From: [REDACTED] NWD02

Sent: Thursday, June 16, 2011 12:34 PM

To: [REDACTED] NWO

Cc: Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWS;

Katz, Daniel M NWS

Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and Dan Katz Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

[REDACTED]

-----Original Message-----

From: [REDACTED] NWO

Sent: Thursday, June 16, 2011 11:46 AM

To: [REDACTED] NWD; [REDACTED] NWO

Cc: [REDACTED] NWD02

Subject: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]

...continuing with the Garrison flood tunnels...

We are exploring our options at Garrison Dam with splitting releases between the flood tunnels adjacent to the power house and the spillway. Garrison has 3 large flood tunnels with a separate but adjacent stilling basin next to the 5 units for the power house.



After high flows in 1997 that were considerably lower than the current releases through the flood tunnels, we experienced cavitation problems. At some point during these extended high flows we would like to transfer all of the flood tunnel flow to the spillway and visually inspect the tunnels.

[REDACTED], structural engineer from Seattle District, was at the projects office earlier this year and had indicated that the Seattle District could not discharge, at least at some of their dams, from the spillway without also discharging from the flood tunnels due to possible problems at the power house.

We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

[REDACTED]  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 1:49 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Cargill Inc - Blair Nebraska (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I had lunch with Remus today. He had some insight regarding what Monty is looking for during this meeting.

[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]

[REDACTED] (fax)

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Thursday, June 16, 2011 1:34 PM  
To: [Monty Gartin@cargill.com](mailto:Monty.Gartin@cargill.com)  
Cc: [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02  
Subject: RE: Cargill Inc - Blair Nebraska (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Monty,

We would be happy to discuss the planned releases with you. As you might expect, we are very busy with the ongoing flood event, so we would prefer setting up a conference call, or if you prefer a face-to-face meeting it would be preferable if you came to our office.

Regards,

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
Office: 402-996-3840

-----Original Message-----

From: [Monty Gartin@cargill.com](mailto:Monty.Gartin@cargill.com) [<mailto:Monty.Gartin@cargill.com>]  
Sent: Wednesday, June 15, 2011 4:43 PM  
To: Management, Missouri Water NWD02  
Subject: Cargill Inc - Blair Nebraska

To Jody Farhat and/or Staff,

We are Cargill Corn Milling in Blair Nebraska, our site is a bio-refinery which includes 6 joint ventures and has an assets value over 2 billion dollars. We have been working with the Army Corps of Engineers from the Omaha District daily. Our relationship with the Corps of engineers has been very positive and we look forward to more interactions.

We recently met with [REDACTED] to help us understand the potential impact of the current release to our site. This meeting helped us to better understand the science and the protocols used to manage the current situation on the Missouri river. Randall discussed with us his role and his understanding of the Corps future release plans.

We know how busy you are, but we would also like to meet with you or a senior member of your staff to better understand future plans and release scenarios. We have created a 3.5 mile berm around our site, but are still very concerned with the economic impact to our customers and the state of Nebraska if we shutdown.

We would like to invite you to our campus for a formal review and discussion on our mutual goals around the safety and well being of our site and community. We look forward to working with the Army Corps of Engineers in a positive and proactive manor. If coming to Blair is not feasible, we are very willing to come to you.

Thank you on behalf of our employees and community,

Monty G. Gartin

Build, operate, and maintain RIGHT to become the partner of choice.

Monty Gartin | Health, Safety & Security Team Leader |Cargill Corn Milling 650 Industrial Park Drive | Blair, NE 68008 | 402-533-1381 | Cell 402-306-3709 | [monty\\_gartin@cargill.com](mailto:monty_gartin@cargill.com)

[cid:609003111@05022009-1FD7](#) Caring Leadership > Systems Excellence > Injury Free Lifestyle

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** Doug Kluck [doug.kluck@noaa.gov]  
**Sent:** Thursday, June 16, 2011 1:43 PM  
**To:** Sarah Palmer  
**Cc:** Bridget Radcliff; Craig.Derickson@ne.usda.gov; Barnes, Verlon; stas@wapa.gov; Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; Blechinger, Erik T NWO; [REDACTED] NWK; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWD; wayne\_nelsonstastny@fws.gov; rhonda.knudsen@bia.gov; steven\_mietz@nps.gov; lleake@usgs.gov; mrolsen@usbr.gov; depperly@usbr.gov; dfritz@usbr.gov; Don\_Simpson@blm.gov; Tony\_Herrell@blm.gov; ssbrooks@blm.gov; theresa\_hanley@blm.gov; brian.yanchik@dot.gov; cothern.joe@epa.gov; berkley.jim@epa.gov  
**Subject:** Re: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments  
**Attachments:** Central Region Seasonal Outlook- July and JAS 2011.pdf

Hi All,

Here is a summary of the monthly and seasonal aspects of the weather/climate in the future. The interpretation is that the chances for wetter and cooler conditions continuing in the upper Missouri basin for the next 3 months are enhanced. So not great news and I hope it's wrong.

There will be a Webinar tomorrow at 10am CDT to discuss this and other climate matters in NOAA's Central Region. Please let me know if cannot sign up.

Doug

<http://www1.gotomeeting.com/g2w/images/475700441/55976021197099447//embed.jpg>

Monthly Climate Call

Join us for a Webinar on June 17

<https://www1.gotomeeting.com/register/475700441>

Space is limited.

Reserve your Webinar seat now at:

<https://www1.gotomeeting.com/register/475700441>

Monthly Climate Call

Title: Monthly Climate Call

Date: Friday, June 17, 2011

Time: 10:00 AM - 11:00 AM CDT

After registering you will receive a confirmation email containing information about joining the Webinar.

System Requirements

PC-based attendees

Required: Windows® 7, Vista, XP or 2003 Server

Macintosh®-based attendees

Required: Mac OS® X 10.4.11 (Tiger®) or newer

<<http://img.gotomeeting.com/g2mimages/1x1.gif>>

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Doug Kluck

Central Region Climate Services Director 7220 NW 101st Terrace Kansas City, MO

O: 816-994-3008

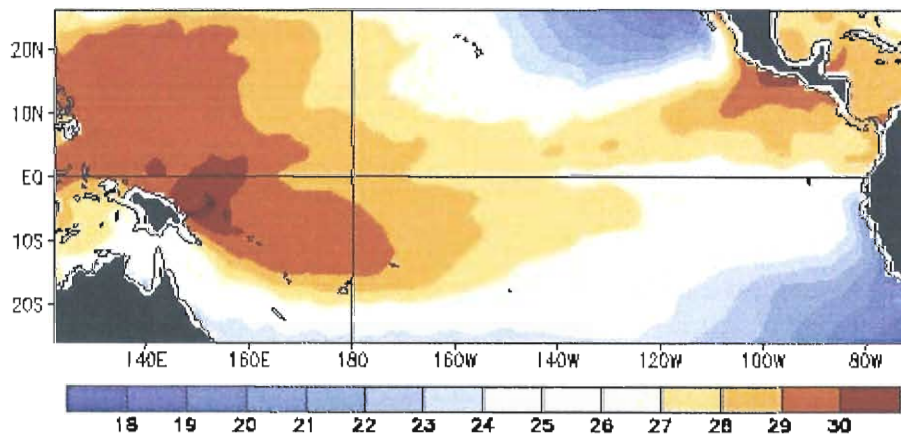
## Central Region Climate Outlook and Summary

### Pacific Ocean Sea Surface Temperatures

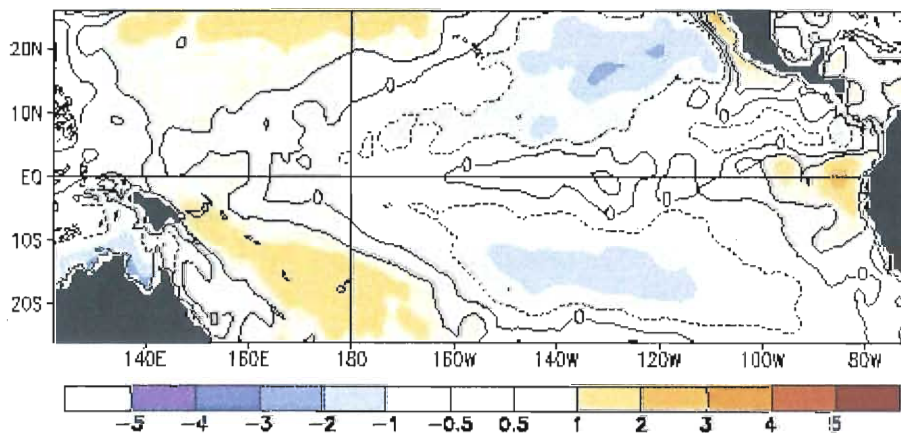
The big news is that a transition from La Niña to ENSO-neutral conditions occurred during May 2011. ENSO-neutral conditions have developed and are expected to continue at least through the Northern Hemisphere summer 2011.

Sea surface temperatures (SSTs) have returned to normal conditions. As of June 9 all of the weekly SST departures in the Niño regions were between  $-0.2^{\circ}\text{C}$  and  $0.7^{\circ}\text{C}$  with Niño3.4 at  $0.0^{\circ}\text{C}$ , and the last three-monthly SST anomaly in Niño3.4 was  $-0.6^{\circ}\text{C}$  in March through May. Positive subsurface SST anomalies have spread across the eastern equatorial Pacific Ocean. In general, the oceanic and atmosphere anomalies recently noted all reflect the transition from La Niña to ENSO-neutral conditions.

Observed Sea Surface Temperature ( $^{\circ}\text{C}$ )



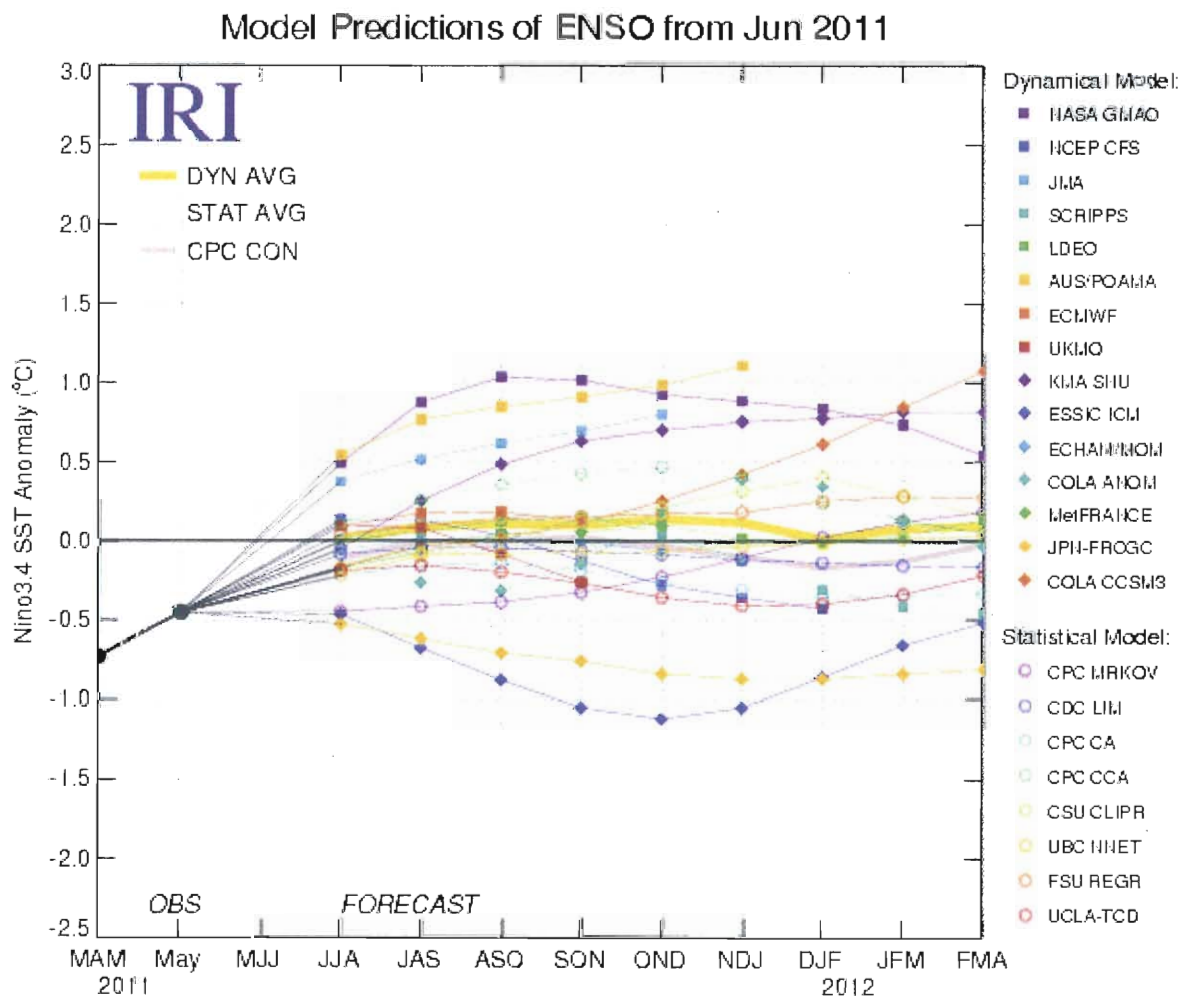
Observed Sea Surface Temperature Anomalies ( $^{\circ}\text{C}$ )



7-day Average Centered on 08 June 2011

## ENSO Model Predictions

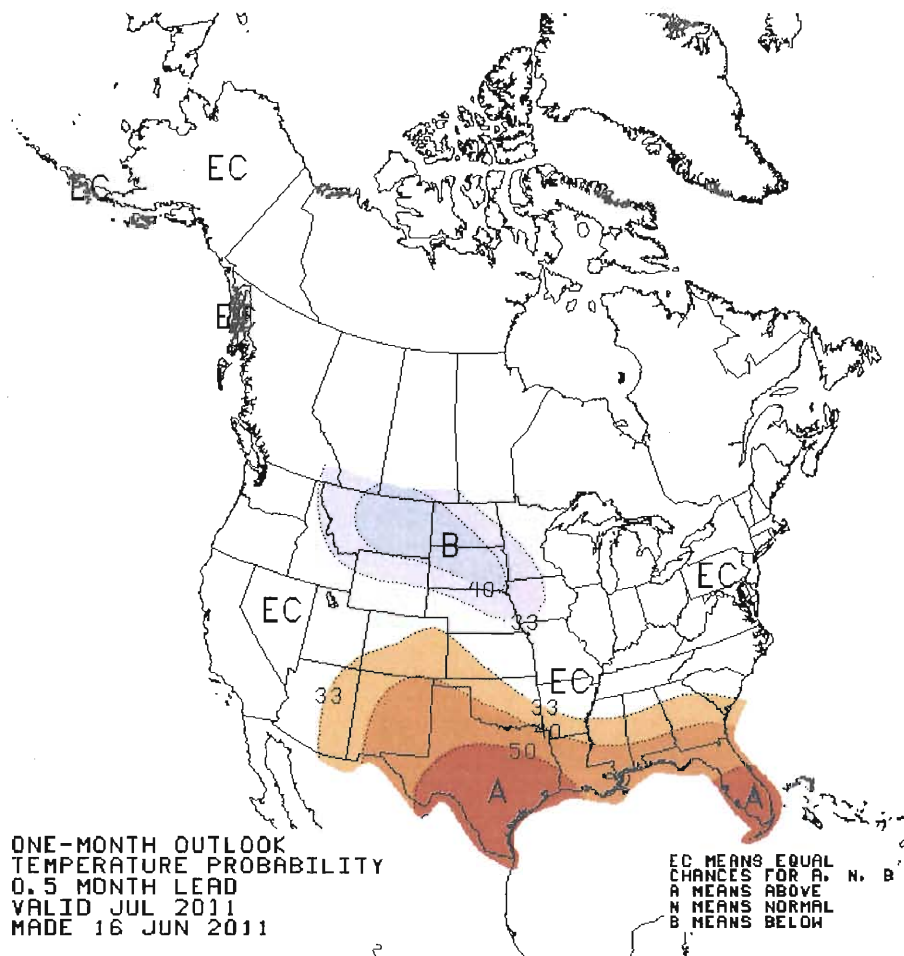
Current observed trends, along with forecasts from a majority of the ENSO models, indicate ENSO-neutral will continue through the Northern Hemisphere summer 2011. Thereafter, most models and all multi-model forecasts indicate ENSO-neutral to continue into the winter of 2011-12. However, model forecast skills are lower at longer lead times and the status of ENSO could change.



## July 2011 CPC Climate Outlooks

### Temperature:

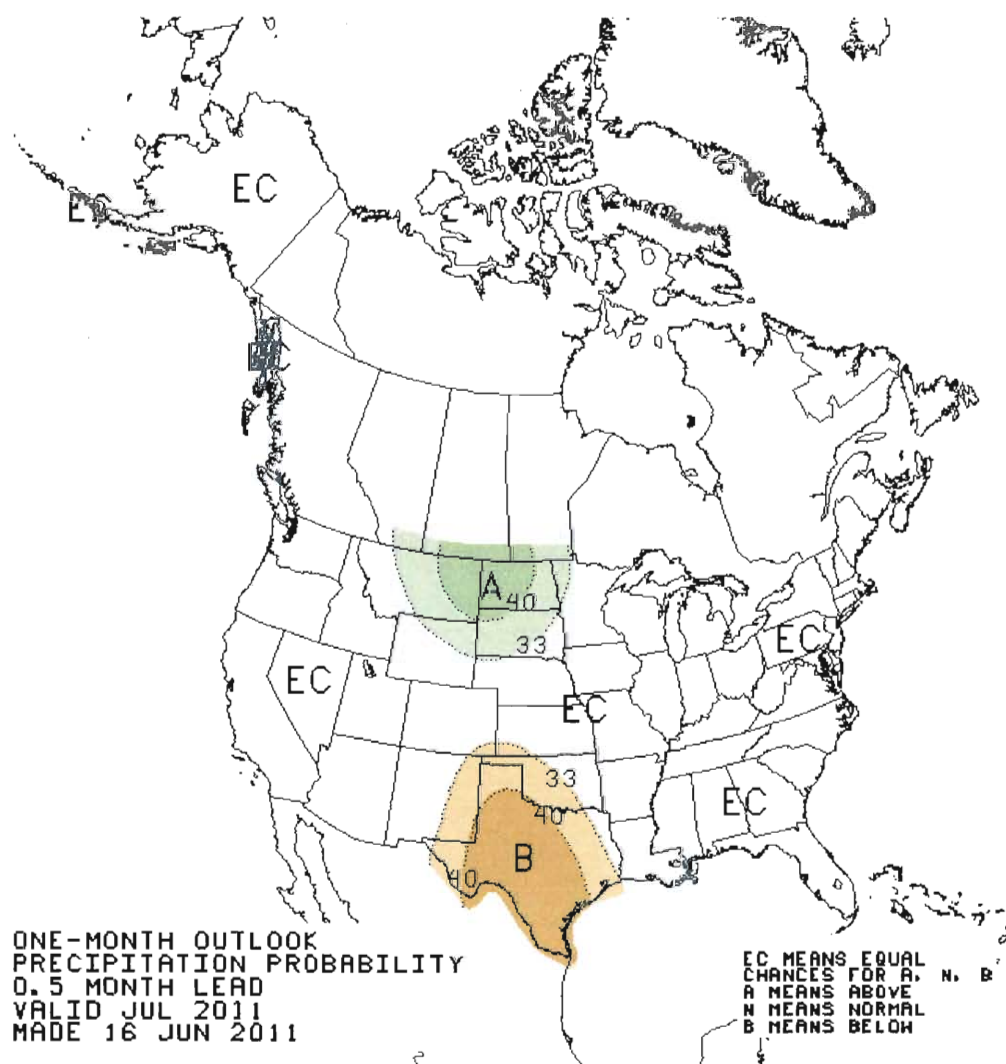
Slightly enhanced chances of colder than normal temperatures are forecast across much of the northern half of Central Region, including northern Wyoming, the Dakotas, southwestern Minnesota, northeastern Nebraska and western Iowa during July. There is an enhanced chance of colder than normal conditions over far northeastern Wyoming, southwestern North Dakota and much of South Dakota. Across the southern tier of the region, slightly enhanced chances of warmer than normal conditions are expected for the southeastern half of Colorado and southwestern Kansas. Elsewhere across the region, indeterminate chances for above-normal, near-normal, and below-normal temperatures are forecast including the Great Lakes Region, middle Mississippi Valley region, eastern Kansas, southwest Nebraska, and south Wyoming.





## Precipitation:

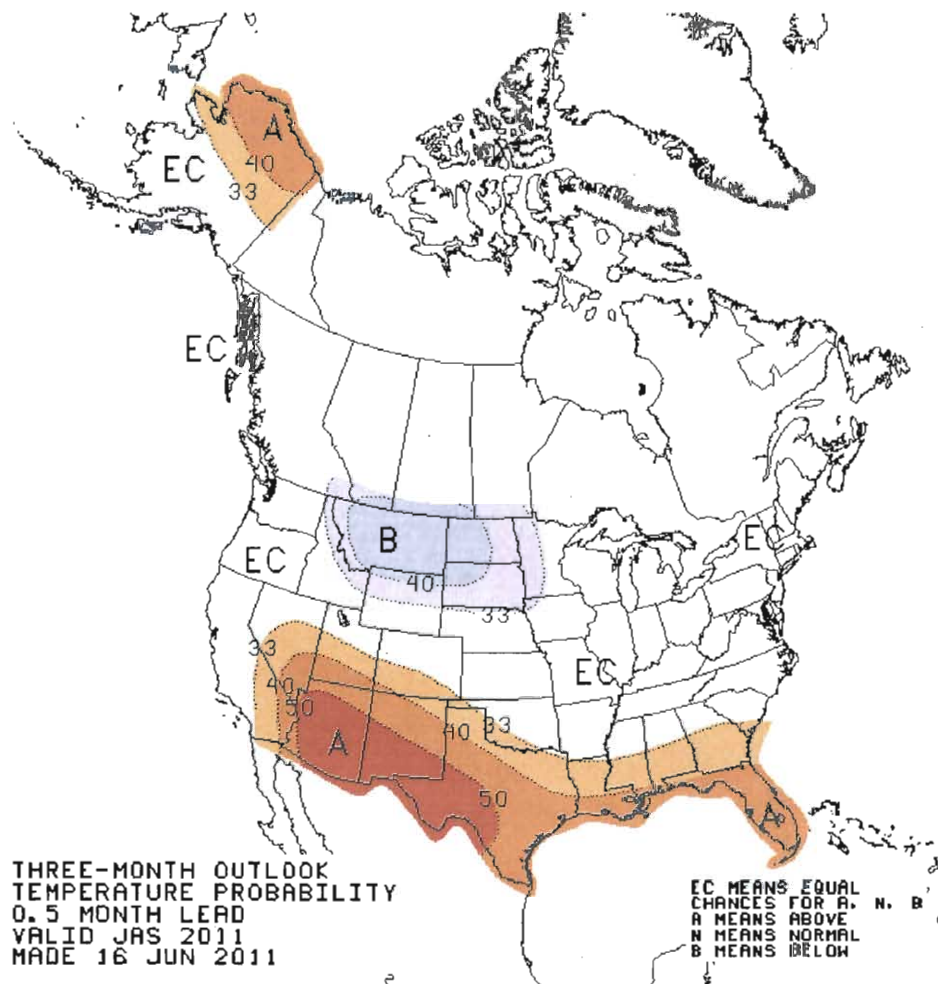
Much of the Central Region has indeterminate chances for above-normal, near-normal, and below normal precipitation for July. However, across the Northern Plains including the Dakotas, far northwestern Minnesota, and northeastern Wyoming, slightly enhanced chances of above normal precipitation is forecast due to existing above normal soil moisture conditions. There are enhanced chances for above normal precipitation over the western two-thirds of North Dakota and far northwestern South Dakota. Slightly enhanced chances of drier than normal conditions are forecast for far southeastern Colorado and far southwestern Kansas.



## 2011 (JAS) July-August-September CPC Outlooks

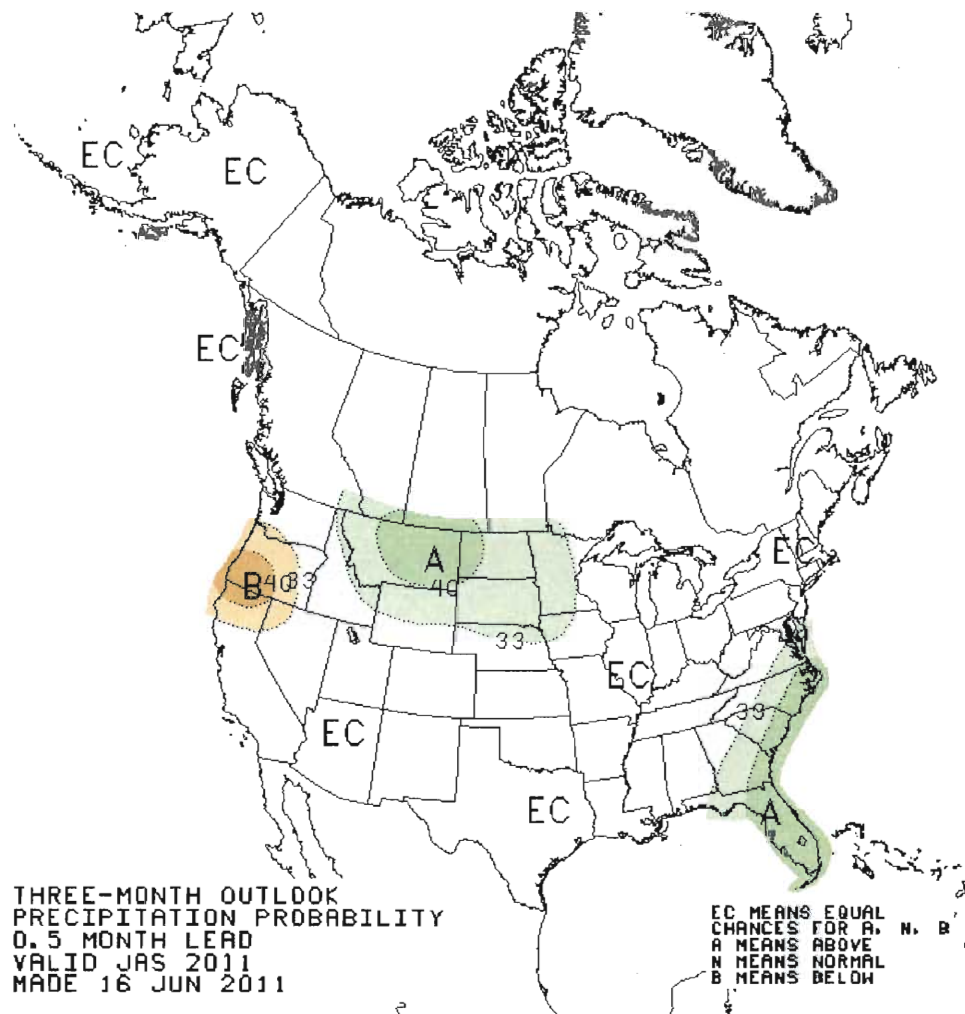
### Temperature:

Much of the Central Region has indeterminate chances of above-normal, near-normal, and below normal temperatures during July. Across the northern tier of the region, including the Dakotas, northern Wyoming, and western Minnesota, slightly enhanced chances of below normal temperatures are forecast over the next three months, which coincides with the area of slightly enhanced chances of above normal precipitation and preexisting wet soil moisture conditions. There is an enhanced chance of colder than normal temperatures over the western half of North Dakota, northwestern South Dakota, and far northern Wyoming. There is an area of slightly enhanced chances of warmer than normal temperatures across far southwestern Colorado.



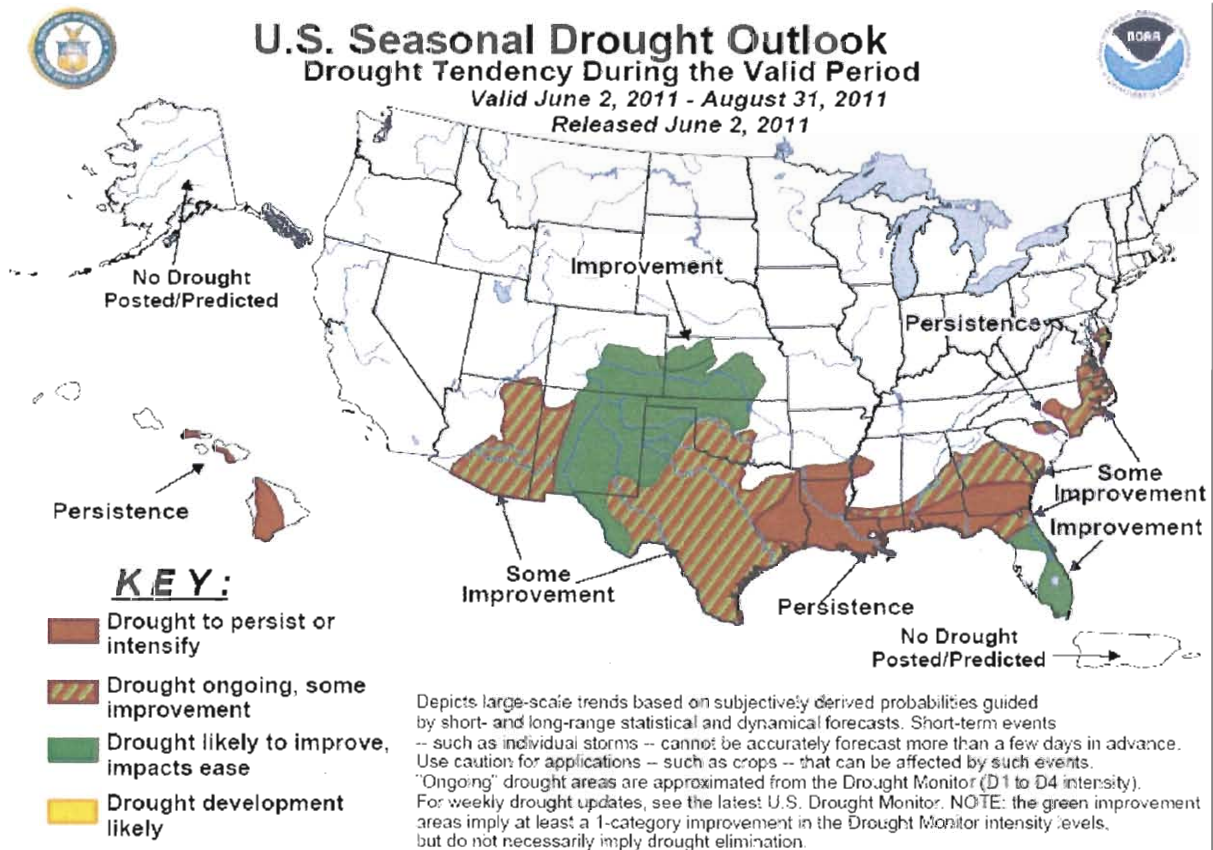
## Precipitation:

The three month outlook for JAS precipitation has changed significantly from the last issuance. Due to large soil moisture anomalies and wet conditions across the Northern Plains and Northern Rockies, the outlook points towards enhanced chances of wetter than normal conditions in the Upper Missouri River Basin. For the JAS period, slightly enhanced chances of above normal precipitation is forecast across the Northern Plains, northern Wyoming, eastern Minnesota, and northwestern Iowa. There is an enhanced chance of above normal precipitation over western North Dakota. Elsewhere across the region, indeterminate chances of above-normal, near-normal, and below-normal precipitation is forecast.



## Seasonal Drought Outlook

The most recent Seasonal Drought Outlook indicates the potential for improvement to drought conditions in Kansas and southeastern Colorado through the end of August.



## Seasonal Outlook Interpretation Guide

The National Weather Service Seasonal Climate Outlooks predict the probability of conditions being among the warmest/coldest or wettest/driest (Table 1) terciles of years compared to the period of 1971-2000.

The outlooks indicate probability of being in three specific categories in reference to the 30-year climatology from 1971-2000 (Table 2). Remember, CPC outlooks are made at the scale of climate megadivisions (Fig. 1).

Temperature		Precipitation	
Social Science	Climate Science	Social Science	Climate Science
Uncommonly Cold	Below Normal Tercile	Uncommonly Wet	Above Normal Tercile
Uncommonly Warm	Above Normal Tercile	Uncommonly Dry	Below Normal Tercile
Moderate (Neither Warm Nor Cold)	Normal Tercile	Moderate (Neither Wet nor Dry)	Normal Tercile

**Table 2...Climate Science Statistical Terminology (Terciles)**

Precip	Temp	Probability of Occurrence			Most likely category
		Above	Near	Below	
		80.0%-90.0%	16.7%-06.7%	03.3%	"Above"
		70.0%-80.0%	26.7%-16.7%	03.3%	"Above"
		60.0%-70.0%	33.3%-26.7%	06.7%-03.3%	"Above"
		50.0%-60.0%	33.3%	16.7%-06.7%	"Above"
		40.0%-50.0%	33.3%	26.7%-16.7%	"Above"
		33.3%-40.0%	33.3%	33.3%-26.7%	"Above"
		33.3%-30.0%	33.3%-40.0%	33.3%-30.0%	"Near Normal"
		30.0%-25.0%	40.0%-50.0%	30.0%-25.0%	"Near Normal"
		33.3%-26.7%	33.3%	33.3%-40.0%	"Below"
		26.7%-16.7%	33.3%	40.0%-50.0%	"Below"
		16.7%-06.7%	33.3%	50.0%-60.0%	"Below"
		06.7%-03.3%	33.3%-26.7%	60.0%-70.0%	"Below"
		03.3%	26.7%-16.7%	70.0%-80.0%	"Below"
		03.3%	16.7%-06.7%	80.0%-90.0%	"Below"
		33.3%	33.3%	33.3%	"Equal Chances"



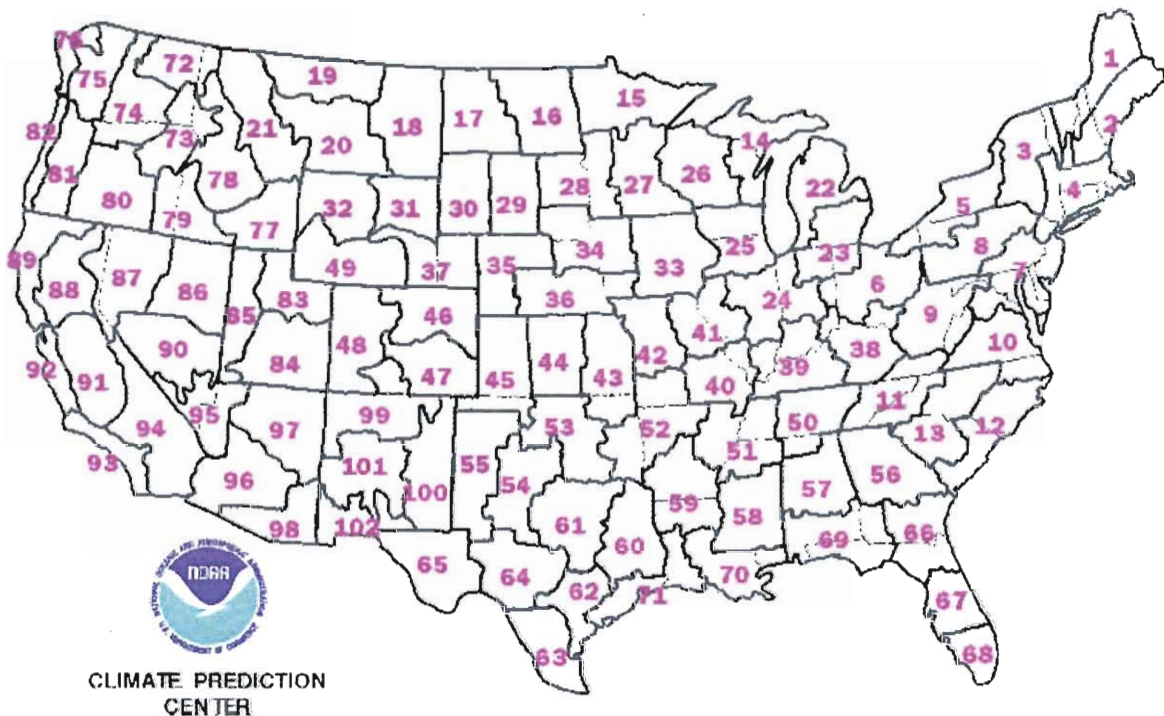


Figure 1...Mega Division Climate Forecast Map used by the Climate Prediction Center (CPC)

The following links show some of the ENSO composites that were used to make these forecasts.

**CPC ENSO Box & Whisker Analysis:**

[http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/box\\_whiskers/index.php](http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/box_whiskers/index.php)

**El Nino and La Niña-Related Winter Features over North America:**

[http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/EC\\_LNT\\_index.shtml](http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/EC_LNT_index.shtml)

**Winter Composites:**

[http://www.cpc.noaa.gov/products/analysis\\_monitoring/ensocycle/nawinter.shtml](http://www.cpc.noaa.gov/products/analysis_monitoring/ensocycle/nawinter.shtml)

**[REDACTED] NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 1:43 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
NWO; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWO;  
[REDACTED] NWO; Bertino, John J Jr NWO; Schenk, Kathryn M NWO; Ruch, Robert J COL  
NWO; Farhat, Jody S NWD02; Jordano, James J LTC NWO  
**Cc:** Oldham, Margaret NWO; Blechinger, Erik T NWO; Johnston, Paul T HQ@ NWO; Farmer,  
Monique L NWO; Quinn, Kevin R NWO; Williamson, Eileen L NWO  
**Subject:** Missouri River Aerial Photos - Rulo to Blair and L-575 Levee Breach

Missouri River aerial flood photos taken 16 June from Rulo to Blair are located on branch shared drive at 2011\_Flood/Missouri River Aerial Photos/Mo River Rulo to Blair 16 June 2011. Photos are in directories by reach. There is a separate directory for L-575-Hamburg area.

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED] (office)  
[REDACTED] (cell)

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 1:40 PM  
**To:** [REDACTED] NWO; [REDACTED] NWD02  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The spillway pilot channel is gone; it looks just like a river now. I'll try to get some pictures later. The backwater flooding concerns from the initial opening of the spillway went away when the old railroad embankment washed away. The spillway tailwater is a little higher than the flood tunnels tailwater but is coming down as the downstream spillway flow continues to cut itself a channel. We are currently at app 52,000 cfs at the spillway and 58,000 at the tunnels. The spillway has a nice stable jump near the end of the chute. The project is on board with a shift of flows and inspection of tunnels if we can manage it. They would also like to see a more stable condition at the flood tunnels stilling basin that I am working on.

[REDACTED]  
-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 12:50 PM  
**To:** [REDACTED] NWD02; [REDACTED] NWO  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], the only issue with putting all the flow through the spillway (other than will the slab hold together) would be how much the pilot channel below the spillway has eroded. If we put 100,000 cfs-plus down the spillway and the pilot channel has not suitably eroded, we could be flooding the fish hatchery (and maybe some project infrastructure) and it could impact the location of the hydraulic jump in a negative manner. I think that if we're going to contemplate putting all this flow through the spillway, we need to talk with the project first and see what impacts they can live with from higher flows out of the spillway and run it up the chain after that. Before we do that though, we need to get an idea of the impact we're talking about.

[REDACTED] do you have a sense of how much the spillway pilot channel has eroded, if any? If we have a tailwater elevation at the stilling basin, Jesse set up a simple RAS model and we could model the existing flow and approximate size of erosion to get that tailwater, and then compute increase in elevation due to increases in outflow. We could also see how much the jump might move (if we could get an approximate location of the jump now, that would help greatly).

Do we have any recent aerial imagery of the areas downstream of the dam, including outlet works and spillway? If not, can we acquire?

[REDACTED]  
-----Original Message-----



From: [REDACTED] NWD02  
Sent: Thursday, June 16, 2011 12:34 PM  
To: [REDACTED] NWO  
Cc: Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWS;  
[REDACTED] NWS  
Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and Dan Katz Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

[REDACTED]  
-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 16, 2011 11:46 AM  
To: [REDACTED] NWD; [REDACTED] NWO  
Cc: [REDACTED] NWD02  
Subject: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
...continuing with the Garrison flood tunnels...

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[REDACTED] structural engineer from Seattle District, was at the projects office earlier this year and had indicated that the Seattle District could not discharge, at least at some of their dams, from the spillway without also discharging from the flood tunnels due to possible problems at the power house.

We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge

sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

[REDACTED] PE  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

From: [REDACTED] NWD  
Sent: Thursday, June 16, 2011 1:38 PM  
To: Farhat, Jody S NWD02  
Subject: RE: glitch in yankton dcp graph (UNCLASSIFIED)

Jody,

So were we releasing at 160k accidentally or just reporting accidentally the wrong information?

[REDACTED]  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers  
Desk: [REDACTED]  
Cell: [REDACTED]

[REDACTED]@usace.army.mil

[REDACTED]@usace.army.smil.mil

Emergency Satellite Phone: 8816-5142-9533 Emergency Cell: 503-888-3656

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-----Original Message-----

From: CENWD-EOC NWD  
Sent: Thursday, June 16, 2011 11:35 AM  
To: DLL-CENWD-DDE  
Subject: FW: glitch in yankton dcp graph (UNCLASSIFIED)

-----  
From: [REDACTED] NWD  
Sent: Thursday, June 16, 2011 11:34:50 AM  
To: CENWD-EOC NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02;  
[REDACTED] NWD  
Subject: Fw: glitch in yankton dcp graph (UNCLASSIFIED) Auto forwarded by a Rule

Situational awareness only. May be an issue at tonight's stakeholder meeting or worse, up to HQs.

---

From: Blair, Amy E NWK  
To: DLL-NWK-MRJIC  
Sent: Thu Jun 16 11:10:19 2011  
Subject: glitch in yankton dcp graph (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Just got a call from a person in Dakota Dunes who said she was clicking around on our website and saw we raised releases at Gavins Point to 160k cfs. While we would certainly inform the public first, I spoke with Jody, who assured this was a glitch in their system and it happens from time to time. They will fix this immediately.

This is a concern for us, solely because the woman who called said she thought we were lying to "the public" about releases and has already reported it to the media. I've attached a screenshot if by the time you click the link, it's missing.

<http://www.nwd-mr.usace.army.mil/rcc/plots/jpegs/ykn.jpg>

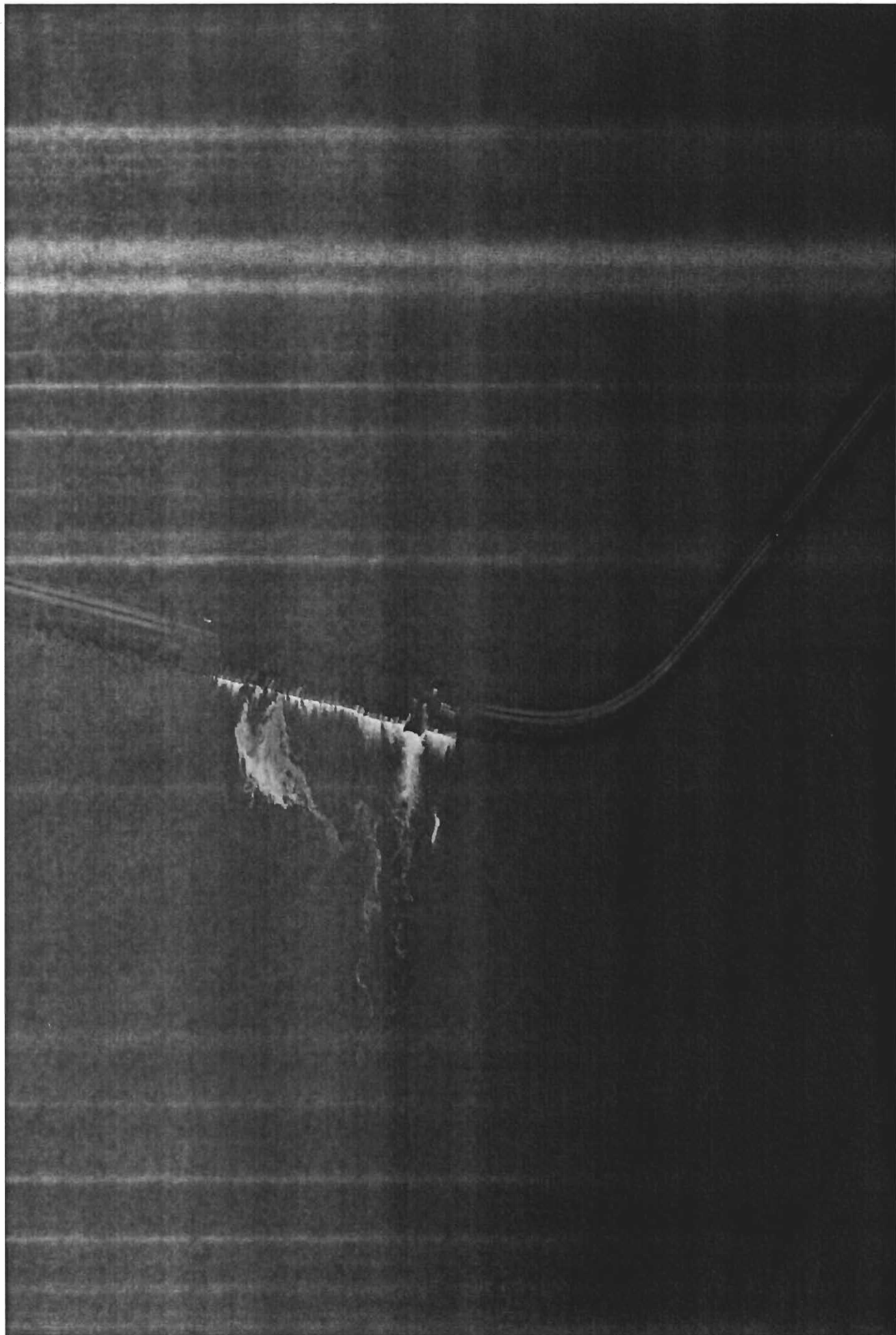
Amy E. Blair  
Outreach Specialist  
Kansas City District,  
U.S. Army Corps of Engineers  
Office: 816-389-3393  
Cell: 816-728-3651  
[Amy.E.Blair@usace.army.mil](mailto:Amy.E.Blair@usace.army.mil) <<mailto:Amy.E.Blair@usace.army.mil>>

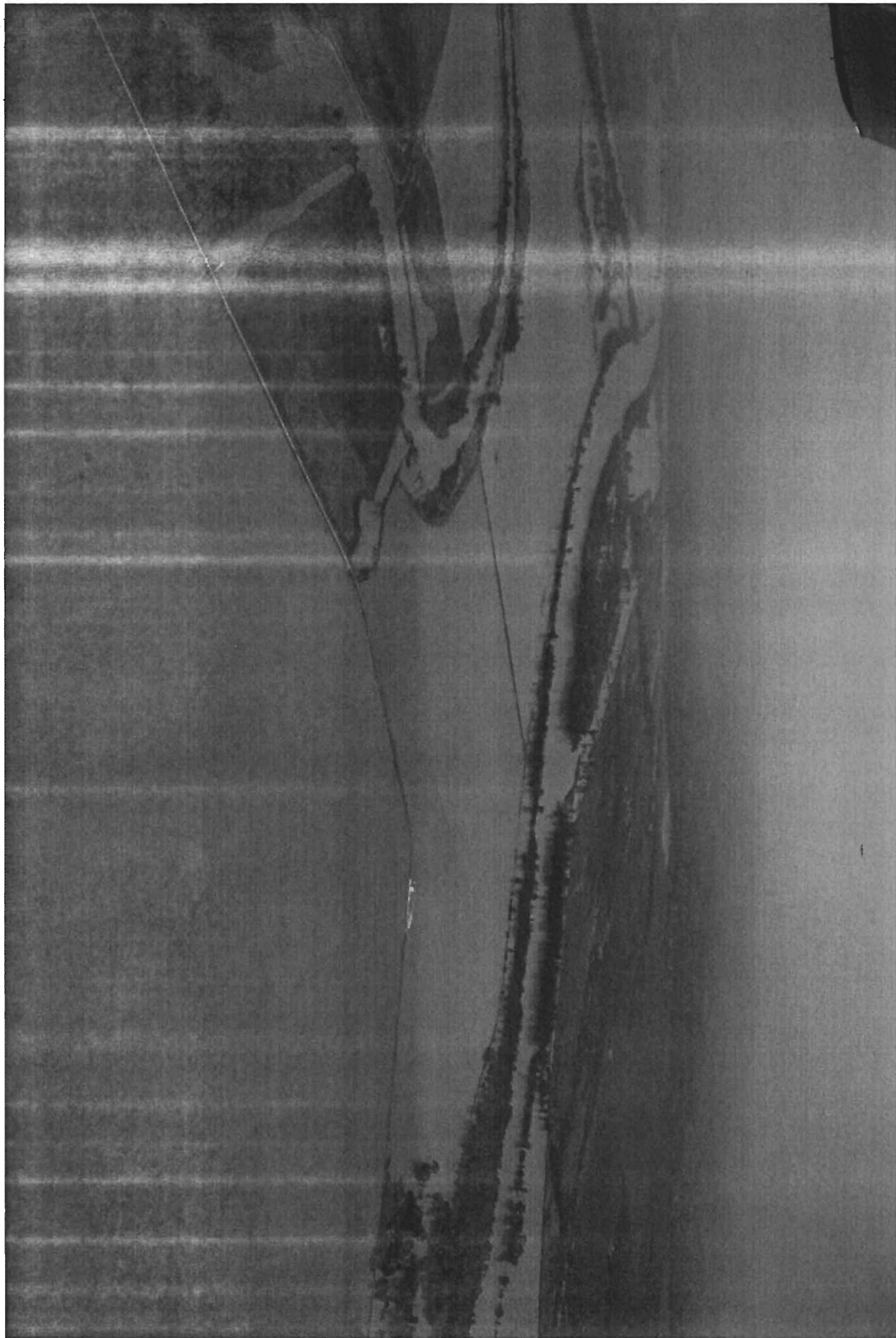
Missouri River Recovery Program on Facebook at <http://www.facebook.com/moriverrecovery>  
<<http://www.facebook.com/moriverrecovery>>

Missouri River Recovery Program on Youtube at <http://www.youtube.com/moriverrecovery>  
<<http://www.youtube.com/moriverrecovery>>

Classification: UNCLASSIFIED

Caveats: NONE





**NWO**

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**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 1:20 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWO; Bertino, John J Jr NWO; Schenk, Kathryn M NWO; Ruch, Robert J COL NWO; Jordano, James J LTC NWO; Farhat, Jody S NWD02  
**Subject:** RE: Missouri River Aerial Photos - L-575 Levee Breach  
**Attachments:** Corp of Eng. 6-16-11A 095.JPG; Corp of Eng. 6-16-11A 100.JPG

Attached are 2 photos of water from Hamburg ponding area flowing back into Missouri River. The rest of photos will be available on branch shared drive in about 15 minutes.

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED] (office)  
[REDACTED] (cell)

[REDACTED] NWO

---

From: [REDACTED] NWK  
Sent: Thursday, June 16, 2011 1:16 PM  
To: Farhat, Jody S NWD02  
Subject: RE: Request for information (UNCLASSIFIED)

Thank you, I'll see if that will suffice.

[REDACTED]  
MRERP Project Management Specialist  
Environmental Resource Section  
Planning Branch  
Kansas City District  
US Army Corps of Engineers  
[REDACTED]

-----Original Message-----  
From: Farhat, Jody S NWD02  
Sent: Thursday, June 16, 2011 1:15 PM  
To: [REDACTED] NWK  
Subject: RE: Request for information (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - the best information we have now is that high releases from the mainstem reservoir system will extend well into August. That is the only timeline we have discussed, the actual date will depend on how much rain falls in the upper basin.

Regards,  
Jody

-----Original Message-----  
From: [REDACTED] NWK  
Sent: Thursday, June 16, 2011 11:00 AM  
To: Farhat, Jody S NWD02  
Subject: Request for information

Jody,

I'm working in the JIC and received a call this morning from SFC Daniel Taylor at the Joint Force Headquarters - J2. He is requesting some form of written guidance for the anticipated duration of the high flows in order to submit a justification to higher headquarters for the use of military assets. Do we already have that somewhere in writing?

His contact info is [REDACTED] or [REDACTED]@us.army.mil

Thanks,

[REDACTED]  
MRERP Project Management Specialist  
Environmental Resource Section



Planning Branch  
Kansas City District  
US Army Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** [REDACTED] MVP  
**Sent:** Thursday, June 16, 2011 12:54 PM  
**To:** MRJIC; Farhat, Jody S NWD02  
**Cc:** Templeton, LeeJay J NWO  
**Subject:** FW: Corps Question (UNCLASSIFIED)  
**Attachments:** yans2\_hg.png

Classification: UNCLASSIFIED  
Caveats: NONE

In the interest of rumor and panic control, please let me know if the spike shown on the attached is anything other than an aberration.

Mr. Miller is the situation action officer for the Dakota Dunes area. He told me he got a call from a woman in the area who spotted the graph for Yankton on the internet. (I don't know if she is a reporter or a resident of Dakota Dunes.) I told him that occasionally we get these weird aberrations showing on the River Forecast Center web-site, but I would check into it for him. It appears that the stage is currently showing levels more appropriate for today:

06/16 17:30 24.81ft 194kcfs.

The gage at Yankton on the James River is declining.

Any further explanation that I can provide?

[REDACTED]  
U.S. Army Corps of Engineers  
at South Dakota EOC  
[REDACTED] (cell)

-----Original Message-----

**From:** [Danielle.Dracy@state.sd.us](mailto:Danielle.Dracy@state.sd.us) [<mailto:Danielle.Dracy@state.sd.us>]  
**Sent:** Thursday, June 16, 2011 12:43 PM  
**To:** [REDACTED] MVP  
**Subject:** FW: Corps Question

**From:** Allan Miller [<mailto:allan.miller980@gmail.com>]  
**Sent:** Thursday, June 16, 2011 12:28 PM  
**To:** Dracy, Danielle  
**Subject:** Corps Question

Danielle, here is a the graphic from the NOAA site that I talked with Rick from the Corps on. I did do some research on my end and looks like the graph did spike. I could find 24.88 @ 0700, 25.93 @ 1045, and 24.77 @ 1100. So the graph did show a spike. Could you forward this

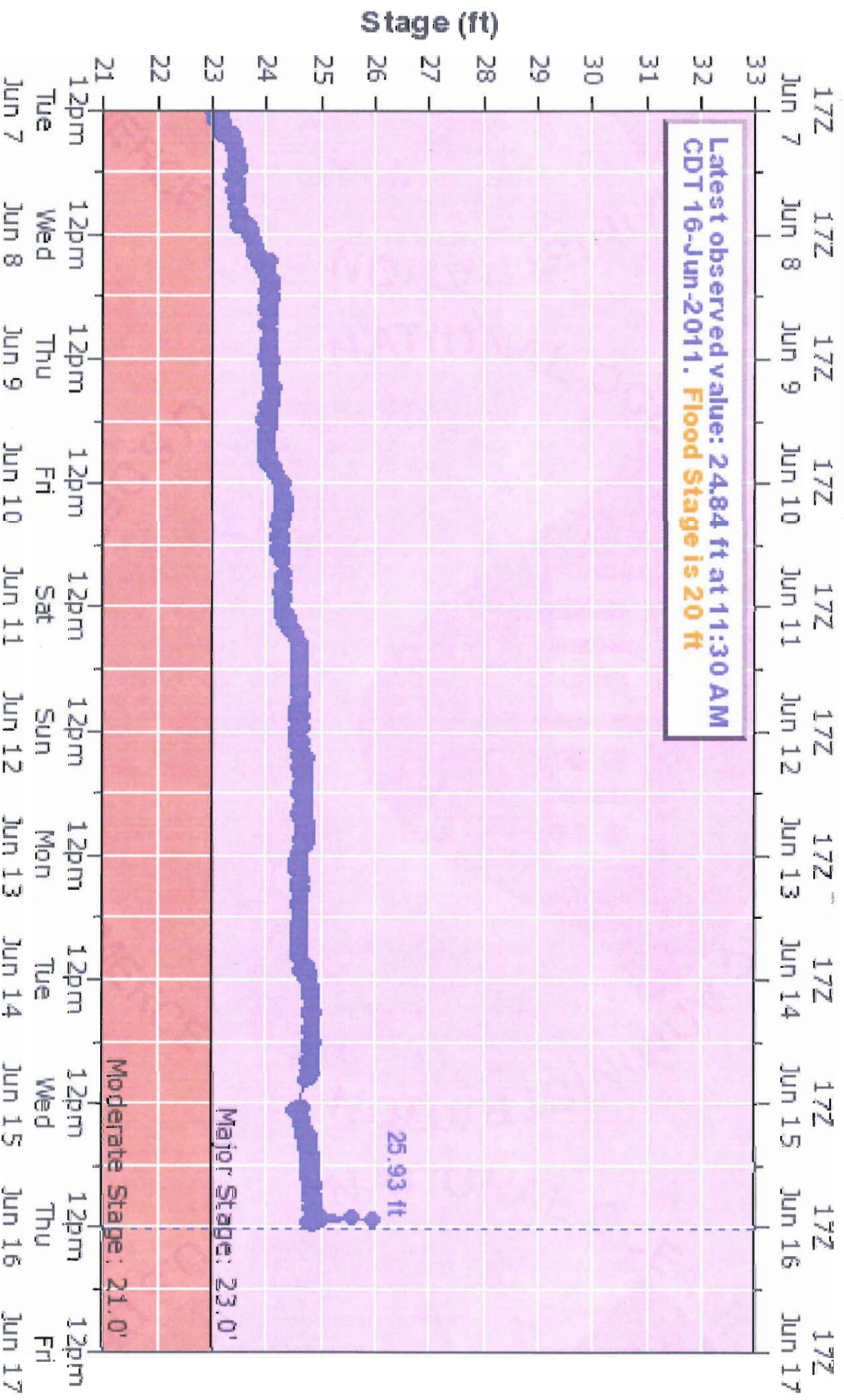
to him so he can give us back an answer on why it spiked to let the lady know. It's more rumor control than anything, but told Sandy I would track it down. Thanks, Allan

Classification: UNCLASSIFIED

Caveats: NONE

# MISSOURI RIVER AT YANKTON

Universal Time (UTC)



Site Time (CDT)

----- Graph Created (12:18PM Jun 16, 2011) —◆— Observed

YANS2(plotting HGIRG) "Gage 0" Datum: 1139.68'

Observations courtesy of US Geological Survey

**NWO**

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 12:50 PM  
**To:** [REDACTED] NWD02; [REDACTED] NWO  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], the only issue with putting all the flow through the spillway (other than will the slab hold together) would be how much the pilot channel below the spillway has eroded. If we put 100,000 cfs-plus down the spillway and the pilot channel has not suitably eroded, we could be flooding the fish hatchery (and maybe some project infrastructure) and it could impact the location of the hydraulic jump in a negative manner. I think that if we're going to contemplate putting all this flow through the spillway, we need to talk with the project first and see what impacts they can live with from higher flows out of the spillway and run it up the chain after that. Before we do that though, we need to get an idea of the impact we're talking about.

[REDACTED], do you have a sense of how much the spillway pilot channel has eroded, if any? If we have a tailwater elevation at the stilling basin, Jesse set up a simple RAS model and we could model the existing flow and approximate size of erosion to get that tailwater, and then compute increase in elevation due to increases in outflow. We could also see how much the jump might move (if we could get an approximate location of the jump now, that would help greatly).

Do we have any recent aerial imagery of the areas downstream of the dam, including outlet works and spillway? If not, can we acquire?

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 12:34 PM  
**To:** [REDACTED] NWO  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWS; Katz, Daniel M NWS  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and Dan Katz Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

[REDACTED]  
-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 16, 2011 11:46 AM  
To: [REDACTED] NWD; [REDACTED] NWO  
Cc: [REDACTED] NWD02  
Subject: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
...continuing with the Garrison flood tunnels...

We are exploring our options at Garrison Dam with splitting releases between the flood tunnels adjacent to the power house and the spillway. Garrison has 3 large flood tunnels with a separate but adjacent stilling basin next to the 5 units for the power house.

After high flows in 1997 that were considerably lower than the current releases through the flood tunnels, we experienced cavitation problems. At some point during these extended high flows we would like to transfer all of the flood tunnel flow to the spillway and visually inspect the tunnels.

[REDACTED], structural engineer from Seattle District, was at the projects office earlier this year and had indicated that the Seattle District could not discharge, at least at some of their dams, from the spillway without also discharging from the flood tunnels due to possible problems at the power house.

We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

[REDACTED]  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED

NWO

From: [REDACTED] NWD02  
Sent: Thursday, June 16, 2011 12:44 PM  
To: DLL-CENWD-PDR; Mcallister, Roy F. Jr NWO  
Subject: Thurs Rain Report

2011 - 14:02:17

0

>>>>>> PAGESIZE 60

>>>>>> DUMPPP24 \* \*

0\*\*NOTE\*\* DATA FOR THE PERIOD 06/16/2011-12Z THROUGH 06/16/2011-12Z WILL BE PROCESSED.

QUANTITY DESC (0.01)

OBSONLY

END

0PP24 DATA FOR 06/16/11-12Z THRU 06/16/11-12Z

0 - = MISSING VALUE OR SUM

E = ESTIMATED VALUE

P = PARTIAL SUM

STATION ID	DESCRIPTION	STATE	06/16	PERIOD SUM
ORNN1	ORLEANS 2W, REPUB R	NE	1.21	1.22
STMN1	STAMFORD, SAPPA CR	NE	1.20E	1.21
LBNK1	LEBANON	KS	0.98	0.99
MLTK1	MILTONVALE	KS	0.95	0.95
NAPN1	NAPONEE, TURKEY CR	NE	0.95	0.95
SMCK1	SMITH CENTER	KS	0.95	0.95
COZN1	COZAD 2S, PLATTE R	NE	0.94	0.94
REPN1	HARLAN COUNTY DAM	NE	0.91E	0.92
CTLK1	COURTLAND	KS	0.86	0.87
WDRK1	WOODRUFF 3WSW	KS	0.86E	0.87
MANK1	MANKATO	KS	0.83	0.83
FKNN1	FRANKLIN, CENTER CR	NE	0.81E	0.81
ELWN1	ELWOOD 8S	NE	0.80	0.81
HARL008	ALMA	NE	0.79E	0.80
BROK1	BURR OAK 1N	KS	0.76	0.76
JWLK1	JEWELL	KS	0.75E	0.75
BURK1	BURR OAK, WHITE ROCK	KS	0.72E	0.73
EDIN1	EDISON 2E, TURKEY CR	NE	0.71E	0.71
GOTN1	GOTHENBURG	NE	0.71E	0.71
IONK1	IONIA	KS	0.71	0.71
STAM8	STAHL PEAK	MT	0.70	0.70
GDRN1	GUIDE ROCK	NE	0.69E	0.69
RVRN1	RIVERTON, REPUBLICAN	NE	0.68E	0.69
RVTN1	RIVERTON, THOMPSON C	NE	0.68	0.69
SNDK1	SCANDIA, REPUBLICAN	KS	0.66E	0.67
EDSN1	EDISON	NE	0.65E	0.65
GUIN1	GUIDE ROCK, REPUB R	NE	0.65E	0.65
LGIK1	LONG ISLAND 1N	KS	0.65E	0.65
ESBK1	ESBON 7N	KS	0.64E	0.64
FRAN002	HILDRETH 5SSE	NE	0.63E	0.63
SCDK1	SCANDIA	KS	0.62E	0.63
CRYM8	CRYSTAL LAKE	MT	0.60	0.61
LOVK1	LOVEWELL DAM	KS	0.60E	0.61
UPLN1	UPLAND	NE	0.60E	0.61
UPDN1	UPLAND 4NE	NE	0.58E	0.58

GLNK1	GLEN ELDER DAM	KS	0.56E	0.56
BLVK1	BELLEVILLE	KS	0.54	0.55
CAWK1	CAWKER CITY	KS	0.53E	0.53
BELK1	BELOIT	KS	0.50	0.50
LCFM8	BROCKWAY 18S	MT	0.49	0.50
RAGN1	RAGAN	NE	0.49E	0.50
AURK1	AURORA	KS	0.48E	0.48
MINN1	MINDEN	NE	0.48	0.48
REDN1	RED CLOUD	NE	0.46E	0.47
GLDK1	GLEN ELDER 2SE	KS	0.45E	0.45
WEBS011	GUIDE ROCK 9N	NE	0.45E	0.45
HARK1	HARLAN	KS	0.45E	0.45
NPLN1	NO PLATTE EXP FARM	NE	0.44	0.44

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC  
DATE=Jun 16, 2011 - 14:02:17

0

STATION				PERIOD
ID	DESCRIPTION	STATE	06/16	SUM
WEBS009	BLADEN 4SW	NE	0.43E	0.44
NEWK1	NORWAY	KS	0.43E	0.44
BLUN1	BLUE HILL 4SW	NE	0.42	0.42
GDV	GLEN DIVE	MT	0.42	0.42
HDYN1	HARDY, REPUBLICAN R	NE	0.42E	0.42
SSPK1	SHARON SPRINGS	KS	0.42E	0.42
SHRK1	SHARON SPRINGS	KS	0.42	0.42
NPAN1	NORTH PLATTE 10S	NE	0.41E	0.41
LBF	NORTH PLATTE AIRPORT	NE	0.41	0.41
CCRN1	CLAY CENTER	NE	0.40	0.41
DIVM8	DIVIDE	MT	0.40	0.41
GRCM8	GRAVE CREEK	MT	0.40	0.41
HARN1	HARDY	NE	0.40E	0.41
NPTN1	NORTH PLATTE	NE	0.40E	0.41
ADAM006	ROSELAND 3SW	NE	0.40E	0.41
HAYN1	HAYES CENTER 1NW	NE	0.39	0.39
HERN1	HERSHEY 5SSE	NE	0.39E	0.39
OVTN1	OVERTON 3W, PLATTE R	NE	0.39E	0.39
JDHM8	JUDITH GAP 13E	MT	0.38E	0.38
NUCK004	LAWRENCE	NE	0.38E	0.38
NUCK001	LAWRENCE	NE	0.38E	0.38
SNOM8	LEWISTOWN 20SW	MT	0.38E	0.38
SRRN1	SUPERIOR 4E	NE	0.38	0.38
LEXN1	LEXINGTON	NE	0.37	0.38
BRAN1	BRADY 1S	NE	0.36E	0.37
BDYN1	BRADY, PLATTE R	NE	0.36E	0.37
YYC	CALGARY	AB	0.36E	0.37
CID	CEDAR RAPIDS AIRPORT	IA	0.36	0.37
YWG	WINNEPEG	MB	0.36E	0.37
BRNN1	BERTRAND	NE	0.35E	0.35
DWNK1	DOWNS	KS	0.35E	0.35
LAR	LARAMIE AIRPORT	WY	0.35	0.35
LGFK1	LONGFORD	KS	0.35E	0.35
GAPM8	JUDITH GAP	MT	0.34E	0.34
LLRW4	LARAMIE, LARAMIE R	WY	0.34E	0.34
TERM8	TERRY 1E	MT	0.34E	0.34
GTNM8	GALLATIN GATEWAY	MT	0.33E	0.34
HOYM8	HOYT 3SW	MT	0.33E	0.34



ADAM010	JUNIATA 7WSW	NE	0.33E	0.34
SGOM8	SHENANGO RAWS	MT	0.33	0.34
DWEN1	DEWEESE, LTL BLUE R	NE	0.32E	0.32
HRVM8	HAVRE #2	MT	0.32E	0.32
HVR	HAVRE AIRPORT	MT	0.32	0.32
EAR	KEARNEY	NE	0.32E	0.32
KRNN1	KEARNEY 4NE	NE	0.32	0.32
DMCW4	LARAMIE 8N	WY	0.32E	0.32
WEBS003	LAWRENCE 4WSW	NE	0.32E	0.32
TYNM8	TERRY 21NNW	MT	0.32E	0.32
BVCN1	BEAVER CITY	NE	0.31E	0.31
BKYM8	BROCKWAY 3WSW	MT	0.31E	0.31
NUCK014	GUIDE ROCK 8ESE	NE	0.31E	0.31
PTIK1	PORTIS, NF SOLOMON R	KS	0.31E	0.31
ARPN1	ARAPAHOE, MUDDY CR	NE	0.30E	0.31

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC  
 DATE=Jun 16, 2011 - 14:02:17

0

STATION			PERIOD
ID	DESCRIPTION	STATE	06/16 SUM
BERN1	BERTRAND	NE	0.30E 0.31
CIRM8	CIRCLE	MT	0.30E 0.31
COLC2	COLUMBINE LODGE	CO	0.30 0.31
DAZM8	DAISY PEAK	MT	0.30 0.31
ELMN1	ELM CREEK 1SSW	NE	0.30E 0.31
JMSK1	JAMESTOWN, BUFFALO C	KS	0.30E 0.31
KEAN1	KEARNEY 3S, PLATTE R	NE	0.30E 0.31
PCKM8	PICKFOOT CREEK	MT	0.30 0.31
SHFM8	SHOWER FALLS	MT	0.30 0.31
SFSM8	SOUTH FORK SHIELDS	MT	0.30 0.31
WLFN1	WELLFLEET	NE	0.30E 0.31
WPKW4	WHISKEY PARK	WY	0.30 0.31
WLVW4	WOLVERINE	WY	0.30 0.31
CUBK1	CUBA	KS	0.29E 0.29
CTSN1	CURTIS 3NNE	NE	0.29E 0.29
ASN8	FORT ASSINNIBOINE	MT	0.29E 0.29
GGWM8	GLASGOW WFO	MT	0.29 0.29
LRMW4	LARAMIE 4SE	WY	0.29E 0.29
LDSM8	LINDSAY	MT	0.29E 0.29
OCNN1	OCONTO	NE	0.29E 0.29
RKSM8	ROCK SPRINGS	MT	0.29E 0.29
AXN	ALEXANDRIA	MN	0.28 0.28
SFJM8	CHECKERBOARD 12NE	MT	0.28 0.28
KIGM8	GLASGOW 33SW	MT	0.28 0.28
CABN1	HARRY STRUNK RES	NE	0.28 0.28
ADAM002	JUNIATA 6SSW	NE	0.28E 0.28
MLDM8	MILDRED 5N	MT	0.28E 0.28
LRBI4	LARRABEE	IA	0.27E 0.28
LSNM8	LITTLE SNOWY RAWS	MT	0.27E 0.28
OXFN1	OXFORD 6NNW	NE	0.27E 0.28
TRBK1	TRIBUNE 1W	KS	0.27 0.28
TBNK1	TRIBUNE 1W	KS	0.27E 0.28
ADAM008	GLENVIL 2WSW	NE	0.26E 0.26
PKRS2	PARKER, WEST FORK	SD	0.26 0.26
MARS2	MARION	SD	0.25E 0.25
RYGM8	RYEGATE 18NNW	MT	0.25 0.25

ATLN1	ATLANTA 2WNW	NE	0.24E	0.24
CLAK1	CLAY CENTER #1	KS	0.24E	0.24
CYCK1	CLAY CENTER, REPUB R	KS	0.24E	0.24
CFTK1	CLIFTON	KS	0.24E	0.24
HSI	HASTINGS	NE	0.24	0.24
LINC004	HERSHEY 6NW	NE	0.24E	0.24
JRNM8	JORDAN 43ENE	MT	0.24E	0.24
MMLN1	MILLER	NE	0.24E	0.24
MNPK1	MINNEAPOLIS	KS	0.24E	0.24
RXFK1	REXFORD	KS	0.24	0.24
SSMM8	SOUTH SAWMILL GDDS	MT	0.24	0.24
WSRM8	WHITE SULPHUR SPRNGS	MT	0.24E	0.24
LEFW4	LARAMIE 2WSW	WY	0.23E	0.23
LCMM8	LEWISTOWN	MT	0.23E	0.23
MRTM8	MARTINSDALE 3NNW	MT	0.23E	0.23
MPSK1	MINNEAPOLIS, SOLOMON	KS	0.23E	0.23
NELN1	NELSON	NE	0.23E	0.23

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC  
 DATE=Jun 16, 2011 - 14:02:17

ID	DESCRIPTION	STATE	06/16	PERIOD SUM
VNRM8	VAN NORMAN 4NE	MT	0.23E	0.23
BMFM8	BLOOMFIELD 5NNE	MT	0.22E	0.22
GIBN1	GIBBON	NE	0.22E	0.22
GGW	GLASGOW INTL AIRPORT	MT	0.22	0.22
3HT	HARLOWTON	MT	0.22E	0.22
HSTN1	HASTINGS 4N	NE	0.22E	0.22
GID	HASTINGS 4N	NE	0.22E	0.22
HUBN1	HUBBELL	NE	0.22E	0.22
JRDM8	JORDAN 25N	MT	0.22E	0.22
CBUM8	MOSBY 39NNW	MT	0.22	0.22
ODSN1	ODESSA	NE	0.22E	0.22
RCHM8	RICHEY 10SW	MT	0.22E	0.22
LINC036	SUTHERLAND 1N	NE	0.22E	0.22
LINC033	SUTHERLAND 1NW	NE	0.22E	0.22
TMPM8	TAMPICO, MILK R	MT	0.22E	0.22
WILM8	WILLSALL 8ENE	MT	0.22E	0.22
HAVM8	FRESNO DAM	MT	0.21E	0.21
GTOM8	GOAT HAUNT MOUNTAIN	MT	0.21E	0.21
JDWM8	JORDAN 23ENE	MT	0.21E	0.21
LWRW4	LARAMIE 2NW	WY	0.21E	0.21
HACM8	MILES CITY 17NE	MT	0.21E	0.21
MOON1	MOOREFIELD	NE	0.21E	0.21
PKD	PARK RAPIDS AIRPORT	MN	0.21E	0.21
RWF	REDWOOD FALLS	MN	0.21	0.21
RSO1	ROSCOE, SO PLATTE R	NE	0.21	0.21
HUTM8	UTICA 11WSW	MT	0.21E	0.21
WKEK1	WAKEFIELD 4W	KS	0.21E	0.21
AGNK1	AGENDA	KS	0.20	0.20
FRON005	BARTLEY 9NNW	NE	0.20E	0.20
BTLW4	BATTLE MOUNTAIN	WY	0.20	0.20
BGSN1	BIG SPRINGS	NE	0.20	0.20
CMBN1	CAMBRIDGE	NE	0.20	0.20
CAMN1	CAMBRIDGE, REPUB R	NE	0.20E	0.20
DDMM8	DEADMAN CREEK	MT	0.20	0.20

FTMM8	FLATTOP MOUNTAIN	MT	0.20	0.20
FTNM8	FLATTOP MTN SNT	MT	0.20E	0.20
GRCW4	GRANITE CREEK	WY	0.20	0.20
HGSC2	HAGERMAN TUNNEL	CO	0.20E	0.20
HLWM8	HARLOWTON 1SW	MT	0.20E	0.20
LCKM8	LICK CREEK	MT	0.20	0.20
LUBM8	LUBRECHT FLUME	MT	0.20	0.20
NSSC2	NAST LAKE	CO	0.20	0.20
NOIM8	NOISY BASIN	MT	0.20	0.20
NFJM8	NORTH FORK JOCKO	MT	0.20	0.20
PTNM8	PETERSON MEADOWS	MT	0.20	0.20
PRPM8	PORCUPINE	MT	0.20	0.20
SKCM8	SOUTH KIRBY RAW	MT	0.20E	0.20
TIBM8	TIZER BASIN	MT	0.20	0.20
CLYN1	CLAY CENTER 6ESE	NE	0.19	0.19
FPKM8	FORT PECK DAM	MT	0.19E	0.19
GNDM8	GLENDIVE	MT	0.19E	0.19
GLNM8	GLENDIVE, YELLOWSTONE	MT	0.19	0.19
GFZM7	GREENFIELD GDDS	MO	0.19	0.19

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ID	DESCRIPTION	STATE	06/16	PERIOD SUM
JORM8	JORDAN	MT	0.19E	0.19
JDN	JORDAN	MT	0.19	0.19
LRGM8	LIVINGSTON AIRPORT	MT	0.19	0.19
MILM8	MILES CITY 1NW	MT	0.19E	0.19
MLS	MILES CITY AIRPORT	MT	0.19	0.19
MICM8	MILES CITY, TONGUE R	MT	0.19E	0.19
MLLN1	MILLER	NE	0.19E	0.19
MSP	MINNEAPOLIS	MN	0.19	0.19
NASM8	NASHUA #2	MT	0.19E	0.19
NSHM8	NASHUA, MILK R	MT	0.19E	0.19
SKLM8	SKYLARK TRAIL	MT	0.19E	0.19
GLWM8	GLASGOW 3SE, MILK R	MT	0.18E	0.19
CUST004	GOTHENBURG 15NNW	NE	0.18E	0.19
ISMM8	ISMAY	MT	0.18E	0.19
MRMM8	MARTINSDALE 2E	MT	0.18E	0.19
FPMM8	NASHUA, MISSOURI R	MT	0.18E	0.19
PHYM8	NEIHART 6S RAW	MT	0.18E	0.19
PXTN1	PAXTON KORTY POWER	NE	0.18E	0.19
SMHM8	WHITE SULPHUR 25NNW	MT	0.18E	0.19
BDE	BAUDETTE AIRPORT	MN	0.17E	0.17
RCBM8	BOX ELDER	MT	0.17	0.17
HAYE002	ELSIE 14SE	NE	0.17E	0.17
GBBN1	GIBBON 3ENE, WOOD R	NE	0.17E	0.17
LGEM8	HAVRE 31N, LODGE CR	MT	0.17E	0.17
KRMM8	KREMLIN	MT	0.17E	0.17
LVM	LIVINGSTON AIRPORT	MT	0.17	0.17
ZPC	PINCHER CR	AB	0.17E	0.17
SVWM8	WILSALL 4NNE	MT	0.17E	0.17
CHNM8	COHAGEN	MT	0.16E	0.16
LWSM8	LEWISTOWN 10S	MT	0.16E	0.16
LNBM8	LINDBERGH LAKE	MT	0.16E	0.16
LIVM8	LIVINGSTON 5S	MT	0.16E	0.16

SLDM8	LIVINGSTON 7NE	MT	0.16E	0.16
KTFM8	MIZPAH 12NE	MT	0.16	0.16
SLBW4	SUNLIGHT BASIN	WY	0.16E	0.16
BCCQ8	CONSUL 1SSW	SK	0.15E	0.16
GFDM7	GREENFIELD 4SE	MO	0.15E	0.16
RIVN1	RIVERDALE, WOOD R	NE	0.15E	0.16
RYEM8	RYEGATE 2E	MT	0.15E	0.16
SELM8	SEELEY LAKE	MT	0.15E	0.16
SHLC2	SHERIDAN LAKE	CO	0.15E	0.16
SHKN1	SHICKLEY 4S	NE	0.15E	0.16
ANDW4	SOUTH PASS CITY 8WSW	WY	0.15E	0.16
ADAK1	ADA 3ESE, SALT CR	KS	0.14E	0.14
CNTM8	CONTENT 3SSE	MT	0.14E	0.14
EUSN1	EUSTIS 2NW	NE	0.14	0.14
LVGM8	LIVINGSTON 12S	MT	0.14E	0.14
MCW	MASON CITY AIRPORT	IA	0.14	0.14
MIZM8	MIZPAH 4NNW	MT	0.14E	0.14
NLSK1	NILES, SOLOMON R	KS	0.14E	0.14
WPO	PILOT MOUND	MB	0.14E	0.14
RYTM8	RYEGATE	MT	0.14E	0.14
SWLM8	SWAN LAKE	MT	0.14E	0.14

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ID	DESCRIPTION	STATE	SUM
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BAGW4	BAGGS	WY	0.13E 0.13
BAKM8	BAKER	MT	0.13E 0.13
BHK	BAKER	MT	0.13 0.13
BRBM8	BARBER	MT	0.13E 0.13
BZEM8	BOZEMAN STATE UNIV	MT	0.13E 0.13
BKNM8	BROCKTON 20S	MT	0.13 0.13
BUFC2	BUFFALO PARK	CO	0.13E 0.13
CLTN1	CARLETON 3SW	NE	0.13E 0.13
POCW4	CLARK 20WSW	WY	0.13E 0.13
CYDK1	CLYDE	KS	0.13E 0.13
DRSK1	DRESDEN	KS	0.13 0.13
GEMK1	GEM	KS	0.13E 0.13
HORM8	HORSE THIEF RAWS	MT	0.13 0.13
MTAM8	MALTA 35S	MT	0.13E 0.13
MGZM8	MILLEGAN 14SE	MT	0.13E 0.13
ROPM8	ROUNDUP	MT	0.13E 0.13
SAWW4	SAWMILL PARK RAWS	WY	0.13 0.13
GPEK1	SELDEN	KS	0.13E 0.13
STBM8	STEAMBOAT RAWS	MT	0.13 0.13
STKN1	STOCKVILLE	NE	0.13E 0.13
TNRC2	TOWNER	CO	0.13E 0.13
BABM8	BABB 4SW	MT	0.12E 0.13
BWSM8	BOZEMAN 4W AGRIMET	MT	0.12E 0.13
CYDM8	CLYDE PARK 1W	MT	0.12E 0.13
CLDK1	CLYDE, ELK CR	KS	0.12E 0.13
CRDW4	CRANDALL CREEK	WY	0.12E 0.13
LNPM8	LENNEP 5SW	MT	0.12E 0.13
LEWM8	LEWISTOWN 2SW	MT	0.12E 0.13
MOKN1	MCCOOK 17NNW	NE	0.12E 0.13
MVDM5	MONTEVIDEO	MN	0.12E 0.13

PRKS2	PARKER, WEST FORK	SD	0.12E	0.13
PMPM8	POMPEYS PILLAR 18N	MT	0.12E	0.13
RUPM8	ROUNDUP, MUSSELSHELL	MT	0.12E	0.13
SBYM8	SODA BUTTE RAWS	MT	0.12	0.13
WLLN1	WALLACE 2W	NE	0.12E	0.13
WGLM8	WEST GLACIER 1N	MT	0.12	0.13
WSTN1	WESTERN 2W	NE	0.12	0.13
AFCS2	ABERDEEN, FOOT CR	SD	0.11	0.12
BONW4	BONDURANT SCHOOL	WY	0.11	0.12
BZMM8	BOZEMAN 6W EXP FARM	MT	0.11E	0.12
BNGN1	BRUNING	NE	0.11E	0.12
BUWW4	BUFORD 6W	WY	0.11E	0.12
FSTM8	FISHTAIL	MT	0.11E	0.12
GBNM8	GIBSON 2NE	MT	0.11E	0.12
HOX	HOXIE	KS	0.11E	0.12
HNTK1	HUNTER	KS	0.11E	0.12
LTTW4	LITTLE WARM SPRINGS	WY	0.11E	0.12
LOCM8	LOCATE, POWDER R	MT	0.11E	0.12
MAKM8	MAC KENZIE	MT	0.11E	0.12
NHTM8	NEIHART 8NNW	MT	0.11E	0.12
PAXN1	PAXTON	NE	0.11E	0.12
PNHM8	PINE HILL RAWS	MT	0.11E	0.12
RPJM8	RAPELJE 4S	MT	0.11E	0.12

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RRDM8	RED ROCK RAWS	MT	0.11E 0.12
TOBN1	TOBIAS	NE	0.11E 0.12
RICS2	ABERDEEN 9NW	SD	0.10E 0.11
ABSM8	ABSAROKEE	MT	0.10E 0.11
SQPM8	ALBERTON	MT	0.10 0.11
AHOC2	ARAPAHOE 12S	CO	0.10E 0.11
ATNS2	ASHTON, JAMES R	SD	0.10 0.11
BLDW4	BALD MOUNTAIN	WY	0.10 0.11
BDDN1	BARTLEY 4SSW	NE	0.10E 0.11
BTNW4	BEAR TRAP MEADOW	WY	0.10 0.11
BLTM8	BEARTOOTH LAKE	MT	0.10 0.11
BBSW4	BLIND BULL SUMMIT	WY	0.10 0.11
BSDW4	BONE SPRINGS DIVIDE	WY	0.10 0.11
BOMM8	BOULDER MOUNTAIN	MT	0.10 0.11
BRCM8	BRACKETT CREEK	MT	0.10 0.11
BRCW4	BURROUGHS CREEK	WY	0.10 0.11
CANW4	CANYON 2SSW	WY	0.10 0.11
CAYW4	CANYON RANGER STA	WY	0.10E 0.11
COSW4	COLD SPRINGS	WY	0.10 0.11
DPCM8	DEEP CREEK PASS	MT	0.10E 0.11
DVDW4	DIVIDE PEAK	WY	0.10 0.11
DMLW4	DOMELAKE	WY	0.10 0.11
DRLC2	DRY LAKE	CO	0.10 0.11
ELKC2	ELK RIVER	CO	0.10 0.11
EMCM8	EMERY CR SNT	MT	0.10 0.11
ROUC2	FAIRPLAY 20N	CO	0.10 0.11
FRES2	FREEMAN	SD	0.10E 0.11
FRHM8	FROHNER MEADOW	MT	0.10 0.11

GILM8	GILDFORD	MT	0.10E	0.11
FWFM8	GRASS RANGE 19SSE	MT	0.10E	0.11
GRSW4	GRASSY LAKE	WY	0.10	0.11
GRLW4	GRASSY LAKE DAM	WY	0.10E	0.11
GZPC2	GRIZZLY PEAK	CO	0.10	0.11
HMKW4	HAMS FORK	WY	0.10	0.11
KLLW4	KELLEY	WY	0.10	0.11
KRW4	KIRWIN	WY	0.10	0.11
LVRM8	LAKEVIEW RIDGE	MT	0.10	0.11
LAVM8	LAVINA	MT	0.10E	0.11
LWSW4	LEWIS LAKE DIVIDE	WY	0.10	0.11
LWMM8	LEWISTOWN 11ESE	MT	0.10E	0.11
LTWW4	LITTLE WARM SPGS SCS	WY	0.10	0.11
LOT2	LOST DOG	CO	0.10	0.11
LYNC2	LYNX PASS	CO	0.10E	0.11
MANM8	MANY GLACIER SNT	MT	0.10	0.11
MRQW4	MARQUETTE CREEK	WY	0.10	0.11
MDDW4	MIDDLE POWDER	WY	0.10	0.11
MNPM8	MONUMENT PEAK	MT	0.10	0.11
MSPM8	MOSS PEAK	MT	0.10	0.11
NHRM8	NEIHART 7NW	MT	0.10E	0.11
NFEM8	NORTH FORK ELK CREEK	MT	0.10	0.11
NORM8	NORTHEAST ENTRANCE	MT	0.10	0.11
ONPM8	ONION PARK	MT	0.10	0.11
PHIK1	PHILLIPSBURG #2	KS	0.10E	0.11

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PHLK1	PHILLIPSBURG 1SSE	KS	0.10E	0.11
PLEM8	PLEVNA	MT	0.10E	0.11
PWDW4	POWDER RIVER PASS	WY	0.10	0.11
NRPS2	ROCHFORD 7NW	SD	0.10	0.11
RLAM8	ROUNDUP 15SW	MT	0.10	0.11
SAJM8	SACAJAWEA	MT	0.10	0.11
SGBW4	SAGE CREEK BASIN	WY	0.10	0.11
SNLW4	SAND LAKE	WY	0.10	0.11
SELK1	SELDEN 11NW	KS	0.10E	0.11
SPSW4	SOUTH PASS	WY	0.10	0.11
SPDM8	SPRINGDALE	MT	0.10E	0.11
SLAW4	ST LAWRENCE	WY	0.10	0.11
SLWW4	ST LAWRENCE RANG STA	WY	0.10E	0.11
SMIM8	ST MARIE	MT	0.10E	0.11
SCSC2	STILLWATER CREEK	CO	0.10	0.11
STCM8	STRINGER CREEK	MT	0.10	0.11
TNDM8	TENDERFOOT RAWS	MT	0.10E	0.11
HAWM8	TROY 34N	MT	0.10	0.11
RAWC2	WALDEN 15ENE	CO	0.10	0.11
WALM8	WALDRON	MT	0.10E	0.11
CHUM8	WALDRON	MT	0.10	0.11
KSMC2	BELOIT 8ESE	KS	0.09E	0.10
BOSW4	BOSLER 2S, LARAMIE R	WY	0.09E	0.10
BZLM8	BOZEMAN 5W	MT	0.09E	0.10
LGNM8	FORT LOGAN 4ESE	MT	0.09E	0.10
FTLM8	FT LOGAN GDSS	MT	0.09E	0.10

GDLK1	GOODLAND 23SW	KS	0.09E	0.10
GIDN1	GRAND ISLAND, WOOD R	NE	0.09E	0.10
HUSK1	HUSCHER	KS	0.09E	0.10
LKVM8	LAKEVIEW	MT	0.09E	0.10
BUSS2	LEAD 11SSW	SD	0.09E	0.10
MNGK1	MINGO 6E	KS	0.09E	0.10
OPDK1	O P #1200 (MARTY LN)	KS	0.09	0.10
SDRW4	SAND LAKE RESERVOIR	WY	0.09E	0.10
SAVM8	SAVAGE	MT	0.09E	0.10
SIDM8	SIDNEY 2S	MT	0.09	0.10
SLVM8	SILVER LAKE	MT	0.09E	0.10
SPD	SPRINGFIELD	CO	0.09E	0.10
VOLM8	VOLBORG	MT	0.09E	0.10
WAUN1	WAUNETA	NE	0.09E	0.10
ALDN1	ALDA 1SW, WOOD R	NE	0.08E	0.09
BKRW4	BECHLER RANGER STA	WY	0.08E	0.09
CYKW4	BIG HORN, CONEY CR	WY	0.08E	0.09
BSYM8	BIG SANDY 4SE	MT	0.08E	0.09
BGRM8	BOZEMAN 12NE	MT	0.08E	0.09
BRGS2	BRIDGEWATER	SD	0.08E	0.09
COSM8	COLUMBUS	MT	0.08E	0.09
CULM8	CULBERTSON	MT	0.08E	0.09
DNWW4	DINWOODY	WY	0.08E	0.09
ELCS2	ELM SPRINGS, ELK CR	SD	0.08	0.09
FAR	FARGO	ND	0.08	0.09
GDEK1	GLADE, N FK SOLOMON	KS	0.08	0.09
GSMN8	GLEASON RAWES	MT	0.08E	0.09

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WAWC2	GRANBY 4NNW	CO	0.08E 0.09
GDLC2	GRAND LAKE 6SSW	CO	0.08E 0.09
HBRN1	HEBRON	NE	0.08 0.09
HBNN1	HEBRON #2	NE	0.08E 0.09
HEBN1	HEBRON #2	NE	0.08E 0.09
MVEM8	MELVILLE 4W	MT	0.08E 0.09
MOSM8	MOSBY 4ENE	MT	0.08E 0.09
MSBM8	MOSBY, MUSSEL RI	MT	0.08E 0.09
RAVN1	RAVENNA	NE	0.08E 0.09
MCCN1	RED WILLOW DAM	NE	0.08E 0.09
SDYM8	SIDNEY 1NE	MT	0.08E 0.09
SBLW4	SODA BUTTE CREEK	WY	0.08E 0.09
SBTC2	STEAMBOAT SPRINGS	CO	0.08E 0.09
TESK1	TESCOTT	KS	0.08E 0.09
VDAC2	VIRGINIA DALE 7ENE	CO	0.08 0.09
BLCW4	WASHAKIE 19NW	WY	0.08E 0.09
ABLK1	ABILENE	KS	0.07E 0.08
ALXN1	ALEXANDRIA 3S	NE	0.07E 0.08
AXDN1	ALEXANDRIA, BIG SANDY	NE	0.07 0.08
ASHS2	ASHTON 2SW	SD	0.07E 0.08
AURN1	AURORA	NE	0.07E 0.08
MGLM8	BABB 10SW	MT	0.07E 0.08
BRNK1	BARNARD, SALT CR	KS	0.07E 0.08
BGTM8	BIG TIMBER	MT	0.07E 0.08

BTMM8	BIG TIMBER 1E	MT	0.07E	0.08
ELMS2	ELM SPRINGS 3ESE	SD	0.07E	0.08
EMSS2	ELM SPRINGS 4NW	SD	0.07E	0.08
JEFF002	FAIRBURY 9WSW	NE	0.07E	0.08
GNVN1	GENEVA	NE	0.07E	0.08
KSSH14	GOODLAND 13SW	KS	0.07E	0.08
GLKC2	GRAND LAKE 1NW	CO	0.07E	0.08
GYSK1	GYP SUM 4S, GYP SUM CR	KS	0.07	0.08
HRBM8	HARB	MT	0.07E	0.08
HHRW4	HYATTVILLE 6NE	WY	0.07E	0.08
BLCM8	INGOMAR 16NE	MT	0.07E	0.08
JELW4	JELM 2S	WY	0.07E	0.08
KLOM8	KILO RAWS	MT	0.07E	0.08
LTIK1	LEOTI	KS	0.07E	0.08
CEFM8	LIMA 36NE	MT	0.07E	0.08
MRVK1	MARYSVILLE	KS	0.07	0.08
ZUBK1	MCCRACKEN	KS	0.07E	0.08
MCCK1	MCCRACKEN	KS	0.07	0.08
KSJO8	OVERLAND PARK 4NNE	KS	0.07E	0.08
PHLN1	PHILLIPS 4SE	NE	0.07E	0.08
RVNN1	RAVENNA, SO LOUP R	NE	0.07E	0.08
RUNM8	RUDYARD 27N	MT	0.07E	0.08
SDY	SIDNEY-RICHLAND AP	MT	0.07	0.08
SPAW4	SOUTH PASS CITY	WY	0.07E	0.08
SPBM8	SPOTTED BEAR RAWS	MT	0.07E	0.08
TRON8	TROTTERS 3SSE	ND	0.07E	0.08
TRTN8	TROTTERS, BEAVER CR	ND	0.07E	0.08
ZIRC2	ZIRKEL	CO	0.07E	0.08
ARMM8	ARMELLS CREEK RAWS	MT	0.06	0.06

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BLNM8	BALLANTINE	MT	0.06E	0.06
BAYM8	BAYLOR	MT	0.06E	0.06
BJI	BEMIDJI AIRPORT	MN	0.06E	0.06
BZN	BOZEMAN AIRPORT	MT	0.06	0.06
BNVC2	BUENA VISTA 2S	CO	0.06E	0.06
CLDW4	BURRIS 10SW	WY	0.06E	0.06
DINW4	BURRIS, DINWOODY CR	WY	0.06E	0.06
CLLM8	CARLYLE 13NW	MT	0.06E	0.06
CCL	CIRCLE 17NNW	MT	0.06E	0.06
CLKC2	CLARK	CO	0.06E	0.06
CKCM8	COOKE CITY 2W	MT	0.06E	0.06
CLBM8	CULBERTSON 3SE	MT	0.06E	0.06
DDZM7	DADEVILLE GDDS	MO	0.06E	0.06
DDVM7	DADEVILLE, SAC R	MO	0.06E	0.06
0759N8	DICKINSON 2NW	ND	0.06E	0.06
DNDN8	DICKINSON DAM	ND	0.06E	0.06
DCKN8	DICKINSON EXP STN	ND	0.06	0.06
ETPK1	ENTERPRISE	KS	0.06	0.06
ENTK1	ENTERPRISE	KS	0.06E	0.06
JEFF006	FAIRBURY 8NNW	NE	0.06E	0.06
FSLM8	FISHTAIL 7W RAWS	MT	0.06E	0.06
GDYC2	GLENDEVEY	CO	0.06E	0.06



GRWN1	GRAND ISLAND	NE	0.06E	0.06
GRIN1	GRAND ISLAND SSE	NE	0.06E	0.06
GRI	GRAND ISLAND AIRPORT	NE	0.06	0.06
HADK1	HADDAM	KS	0.06E	0.06
FBLM8	HARLEM 4SSE	MT	0.06	0.06
HINM8	HINSDALE 4SW	MT	0.06E	0.06
MCDM8	LANDUSKY 16SE RAWS	MT	0.06E	0.06
LDKM8	LANDUSKY 20S	MT	0.06E	0.06
LEIW4	LEIGH CREEK RAWS	WY	0.06E	0.06
LEOK1	LEOTI	KS	0.06E	0.06
MCPK1	MCPHERSON	KS	0.06	0.06
MENM8	MENARD 3NE	MT	0.06E	0.06
MCCM8	MILES CITY RAWS	MT	0.06E	0.06
NESK1	NESS CITY	KS	0.06E	0.06
NOTK1	NORTON 3SW	KS	0.06E	0.06
OPCK1	O P #1100 (CTY HALL)	KS	0.06E	0.06
OPMM8	OPHEIM 12SSE	MT	0.06E	0.06
RAFM8	RAYNESFORD 2NNW	MT	0.06E	0.06
RCH	RED CANYON	WY	0.06E	0.06
SOU	SOUTH PASS CITY 2WNW	WY	0.06E	0.06
LINC027	STAPLETON 8SSE	NE	0.06E	0.06
TWRW4	TOWER FALLS	WY	0.06E	0.06
TFW4	TOWER FALLS STATION	WY	0.06E	0.06
TTNN1	TRENTON DAM	NE	0.06	0.06
9V2	TRENTON DAM 8SSW	NE	0.06E	0.06
UTCK1	UTICA	KS	0.06	0.06
ZRSK1	UTICA 4NE	KS	0.06E	0.06
VALM8	VALENTINE	MT	0.06E	0.06
VNDM8	VANANDA 6NE	MT	0.06E	0.06
NLW4	WASHAKIE, LTL WIND R	WY	0.06E	0.06
WETS2	WETONKA 7S	SD	0.06E	0.06

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WHEI1	WHITE ELEPHANT	ID	0.06E	0.06
WGSM8	WHITE SULPHUR SPRNGS	MT	0.06E	0.06
WRVW4	WIND RIVER	WY	0.06E	0.06
WODN1	WOOD RIVER 1NNW	NE	0.06E	0.06
ADIM7	ALDRICH 3WSW	MO	0.05E	0.05
AERK1	ALEXANDER 4W	KS	0.05E	0.05
APHC2	ARAPAHOE	CO	0.05E	0.05
CACM8	BAKER 12NE	MT	0.05	0.05
BEAN8	BEACH	ND	0.05E	0.05
BCHN8	BEACH 9SE	ND	0.05E	0.05
ZRNK1	BEELEER	KS	0.05E	0.05
GSWM8	BIG SKY 3S	MT	0.05E	0.05
BYDM8	BOYD, RED LODGE CR	MT	0.05E	0.05
BRRW4	BURRIS	WY	0.05E	0.05
CENW4	CENTENNIAL 1NE	WY	0.05E	0.05
CPMN1	CHAPMAN	NE	0.05E	0.05
DROS2	DEADWOOD 15SSE	SD	0.05E	0.05
DBYM8	DERBY MOUNTAIN RAWS	MT	0.05E	0.05
DVL	DEVILS LAKE AIRPORT	ND	0.05	0.05
SUMM8	EAST GLACIER 11SW	MT	0.05E	0.05

EKIM8	EKALAKA 7SE	MT	0.05E	0.05
FRMN1	FAIRMONT	NE	0.05	0.05
SMTW4	FILMORE, LTL LARAMIE	WY	0.05	0.05
GBSM8	GIBSON 4SW	MT	0.05E	0.05
GPI	GLACIER PARK AIRPORT	MT	0.05	0.05
CUST020	GOTHENBURG 24N	NE	0.05E	0.05
GCEN8	GRACE CITY, JAMES R	ND	0.05	0.05
PERK018	GRANT 8WSW	NE	0.05E	0.05
INSM8	HINSDALE 2E	MT	0.05E	0.05
OAEW4	LARAMIE 22SW	WY	0.05E	0.05
GARD009	LEWELLEN 2E	NE	0.05E	0.05
LEWN1	LEWELLEN, NO PLATTE	NE	0.05E	0.05
MCJN1	MCCOOL JUNCTION	NE	0.05E	0.05
MIN52	MINA (MINA LAKE)	SD	0.05E	0.05
MQM	MONIDA	MT	0.05E	0.05
MOOW4	MOOSE	WY	0.05E	0.05
COCF10	NATHROP 5SSW	CO	0.05E	0.05
TCKW4	NORRIS JUNCTION 1NW	WY	0.05E	0.05
RWCN1	RED WILLOW (BLO DAM)	NE	0.05E	0.05
RPTM8	REEDPOINT	MT	0.05E	0.05
RIMM8	RIMINI 4NE	MT	0.05E	0.05
STDK1	STUDLEY 9NNW	KS	0.05E	0.05
DDEW4	TORRINGTON 29N	WY	0.05	0.05
VLRW4	VALLEY 9NNE	WY	0.05E	0.05
WEBM8	WEBSTER 3E	MT	0.05E	0.05
WSSM8	WHITE SULPHUR SPRNGS	MT	0.05E	0.05
WBXM8	WIBAUX 2E	MT	0.05E	0.05
WCRM8	WICKED CREEK RAW5	MT	0.05E	0.05
ALSM8	ALDER 17S	MT	0.04E	0.04
ADRM8	ALDER 19S	MT	0.04E	0.04
ATNK1	ALTON 2SW	KS	0.04	0.04
ARNN1	ARNOLD	NE	0.04E	0.04
ATHS2	ATHOL, SF SNAKE CR	SD	0.04E	0.04

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COWW4	BAGGS 21NNE	WY	0.04E	0.04
ZROK1	BEELER	KS	0.04E	0.04
BGHM8	BIG HORN 4SW GDDS	MT	0.04E	0.04
BGSM8	BIG SKY 2WNW	MT	0.04E	0.04
BRDN1	BRADSHAW	NE	0.04	0.04
COCF25	BUENA VISTA 4WNW	CO	0.04E	0.04
BULW4	BULL LAKE OUTFLOW	WY	0.04E	0.04
CWYN1	CALLAWAY 8WSW	NE	0.04	0.04
CINW4	CINNABAR PARK	WY	0.04E	0.04
COUW4	COULTER CREEK	WY	0.04E	0.04
DDC	DODGE CITY	KS	0.04	0.04
DBCM8	DRY BLOOD CREEK RAW5	MT	0.04E	0.04
RASW4	DUBOIS 22SW	WY	0.04E	0.04
DUMK1	DURHAM	KS	0.04E	0.04
DURK1	DURHAM	KS	0.04E	0.04
EGHM8	EAGLEHEAD	MT	0.04E	0.04
EKLM8	EKALAKA	MT	0.04E	0.04
ENDN1	ENDERS DAM	NE	0.04E	0.04

ENSM8	ENNIS	MT	0.04E	0.04
ENN8	ENNIS RAWS	MT	0.04E	0.04
FSYM8	FORSYTH	MT	0.04E	0.04
GNAM8	GLENTANA 4SW	MT	0.04E	0.04
GSSM8	GRASS RANGE	MT	0.04E	0.04
GSRM8	GRASS RANGE 13NE	MT	0.04E	0.04
HLBK1	HILLSBORO	KS	0.04E	0.04
HGMM8	HINGHAM 12N	MT	0.04E	0.04
HOBM8	HOBSON	MT	0.04E	0.04
HORC2	HOHNHOLZ RANCH	CO	0.04E	0.04
SBRM8	HUNTLEY EXP STATION	MT	0.04E	0.04
HYSM8	HYSHAM	MT	0.04E	0.04
JAC	JACKSON HOLE AIRPORT	WY	0.04E	0.04
TIZM8	JEFFERSON CITY	MT	0.04	0.04
KONK1	KANORADO	KS	0.04E	0.04
MTNW4	KINNEAR 9WNW	WY	0.04E	0.04
LMRW4	LAMAR RANGER STATION	WY	0.04E	0.04
YQL	LETHBRIDGE	AB	0.04E	0.04
LRRM8	LIMA RESERVOIR	MT	0.04E	0.04
LSBK1	LINDSBORG	KS	0.04E	0.04
LNSK1	LINDSBORG, SMOKY HILL	KS	0.04E	0.04
LONK1	LOGAN	KS	0.04E	0.04
MML	MARSHALL AIRPORT	MN	0.04E	0.04
ZUGK1	MCCRACKEN	KS	0.04E	0.04
ZUJK1	MCCRACKEN	KS	0.04E	0.04
MCHN8	MCHENRY 3W	ND	0.04E	0.04
MDLM8	MCLEOD	MT	0.04E	0.04
MELM8	MELSTONE	MT	0.04E	0.04
MNOS2	MENNO	SD	0.04E	0.04
MTRK1	MENTOR, SMOKY HILL R	KS	0.04E	0.04
MOCM8	MOCCASIN 2W	MT	0.04E	0.04
MCWM8	MOCCASIN 2W AGRIMET	MT	0.04E	0.04
NYEM8	NYE #2	MT	0.04E	0.04
OKLK1	OAKLEY #2	KS	0.04E	0.04
OAKK1	OAKLEY 4W	KS	0.04	0.04

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OPNK1	OVERLAND PARK	KS	0.04E	0.04
PHIM8	PHILIPSBURG 2S	MT	0.04E	0.04
POPM8	POPLAR	MT	0.04E	0.04
POWM8	POWDERVILLE 8NNE	MT	0.04E	0.04
RVLS2	RAUVILLE 2S	SD	0.04	0.04
RKRW4	ROCK RIVER 13NNW	WY	0.04E	0.04
ROYM8	ROY 8NE	MT	0.04E	0.04
RUSK1	RUSSELL 5N, SALINE R	KS	0.04	0.04
COCF8	SALIDA 6NW	CO	0.04E	0.04
ZVGK1	SCOTT CITY 12SE	KS	0.04E	0.04
SLBN1	ST LIBORY	NE	0.04E	0.04
SKTK1	STOCKTON 9N, BOW CR	KS	0.04E	0.04
WYWH1	TEN SLEEP 5NNW	WY	0.04E	0.04
Y68	TRACY	MN	0.04E	0.04
VADC2	VIRGINIA DALE 7NE	CO	0.04E	0.04
WLLK1	WALLACE	KS	0.04	0.04

WARM8	WARRICK 2NW	MT	0.04E	0.04
WWKN8	WARWICK	ND	0.04E	0.04
WTAS2	WASTA	SD	0.04E	0.04
WASS2	WASTA 3E, CHEYENNE R	SD	0.04E	0.04
WTRS2	WATERTOWN, BIG SIOUX	SD	0.04	0.04
ETH	WHEATON	MN	0.04E	0.04
JDRM8	WINIFRED, JUDITH R	MT	0.04E	0.04
WOPW4	WOODS, PIONEER CANAL	WY	0.04	0.04
YLAW4	YELLOWSTONE(MAMMOTH)	WY	0.04E	0.04
YORN1	YORK 3N	NE	0.04	0.04
KSDS2	ABERDEEN 3SW	SD	0.03E	0.04
ASHM7	ASH GROVE 3N	MO	0.03E	0.04
HTOS2	ASHTON 5E	SD	0.03E	0.04
BKNK1	BAZINE 6NW	KS	0.03E	0.04
BEVN1	BEAVER CITY 4WSW	NE	0.03E	0.04
BLFN8	BELFIELD 1SW	ND	0.03E	0.04
BYDW4	BOYD RIDGE RAWS	WY	0.03E	0.04
BTNM8	BROCKTON 17N	MT	0.03E	0.04
BBRW4	BUFFALO BILL ABV	WY	0.03E	0.04
BUFW4	BUFORD 5SE	WY	0.03E	0.04
CAIN1	CAIRO 5S	NE	0.03E	0.04
CRON1	CAIRO 5S	NE	0.03E	0.04
CCSW4	CASTLE CREEK SNOTEL	WY	0.03E	0.04
CTLN1	CENTRAL CITY	NE	0.03E	0.04
CPMK1	CHAPMAN	KS	0.03E	0.04
CHPK1	CHAPMAN, CHAPMAN CR	KS	0.03E	0.04
CNKM8	CHINOOK	MT	0.03	0.04
CHKM8	CHINOOK 35SE	MT	0.03E	0.04
PRVM8	CHINOOK 3SE	MT	0.03E	0.04
CCLM8	CIRCLE 20N	MT	0.03E	0.04
CYTS2	CLAYTON, WOLF CR	SD	0.03E	0.04
SFOW4	CODY 19SW	WY	0.03E	0.04
COVK1	COVERT	KS	0.03E	0.04
LSKM5	CURRIE	MN	0.03E	0.04
CCCS2	CUSTER CROSSING CAMP	SD	0.03E	0.04
DELM8	DEL BONITA	MT	0.03E	0.04
3DU	DRUMMOND 2SW	MT	0.03E	0.04

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WYFM4	DUBOIS 10WNW	WY	0.03E	0.04
DBOW4	DUBOIS, WIND R	WY	0.03E	0.04
EGLM8	EAST GLACIER	MT	0.03E	0.04
EVEM7	EVERTON 3S	MO	0.03E	0.04
FRMN8	FORMAN 5SSE	ND	0.03E	0.04
GFDN8	GLENFIELD	ND	0.03E	0.04
GOEN1	GOEHNER	NE	0.03E	0.04
HRBN1	HARBINE 1WSW	NE	0.03E	0.04
UMHM8	HARLOWTON 5W	MT	0.03E	0.04
HVNN8	HAVANA	ND	0.03	0.04
HCLW4	HECLA 1E	WY	0.03E	0.04
HICK1	HILL CITY	KS	0.03E	0.04
HLC	HILL CITY	KS	0.03	0.04
HLCK1	HILL CITY #2	KS	0.03E	0.04

HLLK1	HILL CITY 1E	KS	0.03E	0.04
HLDN1	HOLDREGE	NE	0.03	0.04
HXIK1	HOXIE	KS	0.03E	0.04
HOXK1	HOXIE	KS	0.03E	0.04
INMK1	INMAN	KS	0.03E	0.04
IOW	IOWA CITY AIRPORT	IA	0.03	0.04
IRES2	IRENE	SD	0.03E	0.04
ISPI1	ISLAND PARK 9ENE	ID	0.03E	0.04
JANN1	JANSEN	NE	0.03E	0.04
KEYC2	KEYSTONE 7ESE	CO	0.03E	0.04
SN0	LENORA	KS	0.03E	0.04
LENK1	LENORA #2	KS	0.03E	0.04
LNRK1	LENORA, NF SOLOMON R	KS	0.03E	0.04
3K7	LEOTI	KS	0.03E	0.04
MSDK1	LOONEY, MIKE	KS	0.03E	0.04
MRMN8	MARMARTH	ND	0.03E	0.04
MCK	MCCOOK	NE	0.03	0.04
MCXN1	MCCOOK	NE	0.03	0.04
MCON1	MCCOOK #2	NE	0.03E	0.04
MKRN1	MCCOOK, REPUBLICAN R	NE	0.03E	0.04
MCVN8	MCVILLE	ND	0.03E	0.04
YXH	MEDICINE HAT	AB	0.03E	0.04
MLKM8	MEDICINE LAKE RAWS	MT	0.03E	0.04
MELS2	MELLETTE 4W	SD	0.03E	0.04
MLTS2	MELLETTE 7NE	SD	0.03E	0.04
MLRM7	MILLER 1E	MO	0.03E	0.04
NCMK1	NEW CAMBRIA 1SE	KS	0.03E	0.04
HRAN8	NEW HRADEC, GREEN R	ND	0.03E	0.04
NRKN8	NEW ROCKFORD	ND	0.03E	0.04
OAYK1	OAKLEY	KS	0.03E	0.04
OSHN1	OSHKOSH	NE	0.03E	0.04
OKSN1	OSHKOSH 10NE	NE	0.03E	0.04
OHKN1	OSHKOSH 8SW	NE	0.03E	0.04
PHGM8	PHILIPSBURG RAWS	MT	0.03E	0.04
PNVS2	PLAINVIEW 6SSW	SD	0.03E	0.04
PAGM8	POPLAR 2WSW	MT	0.03E	0.04
RANK1	RANSOM 2NE	KS	0.03E	0.04
RWL	RAWLINS	WY	0.03	0.04
RLSW4	RAWLINS 1N	WY	0.03E	0.04

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RLNW4	RAWLINS 1NE	WY	0.03E 0.04
ROCS2	ROCHFORD 2WNW	SD	0.03E 0.04
SEWN1	SEWARD	NE	0.03 0.04
SWRN1	SEWARD #2	NE	0.03E 0.04
SPCW4	SOUTH PASS CITY 3NNE	WY	0.03E 0.04
STNM8	STANFORD	MT	0.03E 0.04
TOWM8	TOWNSEND	MT	0.03E 0.04
UNIS2	UNION CENTER	SD	0.03E 0.04
VIDM8	VIDA 6NE	MT	0.03E 0.04
VRGM8	VIRGELLE, MISSOURI R	MT	0.03E 0.04
WWCS2	WATERTOWN 3NE	SD	0.03 0.04
WIFC2	WILLIAMS FORK DAM	CO	0.03E 0.04

WLSN1	WILSONVILLE	NE	0.03	0.04
WNDK1	WINDOM 1SE	KS	0.03E	0.04
OLF	WOLF POINT	MT	0.03	0.04
WLFM8	WOLF POINT	MT	0.03E	0.04
YLWM8	YELLOW MULE RAWS	MT	0.03E	0.04
YLWW4	YELLOWSTONE(MAMMOTH)	WY	0.03E	0.04
SUES2	ABERDEEN 2S	SD	0.02E	0.02
AGAN1	AGATE 3E	NE	0.02E	0.02
AGTN1	AGATE 3ENE RAWS	NE	0.02E	0.02
ALEN8	ALEXANDER 4NNW	ND	0.02E	0.02
ATAW4	ALTA	WY	0.02E	0.02
AMDN8	AMIDON 12NW	ND	0.02E	0.02
ARNK1	ARNOLD, SMOKY HILL R	KS	0.02E	0.02
ASHN1	ASHTON	NE	0.02E	0.02
ASHI1	ASHTON	ID	0.02E	0.02
ATWK1	ATWOOD 8SSE	KS	0.02E	0.02
ATWC2	ATWOOD, SO PLATTE R	CO	0.02	0.02
AUSM8	AUSTIN 1W	MT	0.02E	0.02
KGLM8	BABB	MT	0.02E	0.02
BEAK1	BEATTIE 2NNW	KS	0.02E	0.02
BVRN1	BEAVER CROSSING	NE	0.02E	0.02
BDBM8	BRANDENBERG	MT	0.02E	0.02
BFTS2	BRENTFORD	SD	0.02E	0.02
BWXW4	BUFFALO BILL RES	WY	0.02E	0.02
BYI	BURLEY AIRPORT	ID	0.02E	0.02
BLFM8	BYNUM 7NW	MT	0.02E	0.02
CRNN8	CARRINGTON 4N	ND	0.02E	0.02
CHLS2	CHELSEA	SD	0.02E	0.02
CVDM8	CHINOOK 21SE	MT	0.02E	0.02
CUDM8	CLEVELAND 5ENE	MT	0.02E	0.02
COYW4	CODY 21SW	WY	0.02E	0.02
CBKK1	COLBY 1SW	KS	0.02	0.02
CNK	CONCORDIA	KS	0.02	0.02
CONK1	CONCORDIA 1W	KS	0.02E	0.02
CNKK1	CONCORDIA, REPUB R	KS	0.02	0.02
CORM8	CORWIN SPRINGS	MT	0.02E	0.02
RED_013	DANBURY 1W	NE	0.02E	0.02
DNBN1	DANNEBROG #2	NE	0.02E	0.02
DABN1	DANNEBROG 4NW	NE	0.02E	0.02
DBGN1	DANNEBROG, TURKEY CR	NE	0.02	0.02
DOMC2	DEAD MAN HILL	CO	0.02E	0.02

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DDMC2	DEADMAN HILL	CO	0.02E	0.02
DNSK1	DENSMORE 2N	KS	0.02E	0.02
DIK	DICKINSON AIRPORT	ND	0.02	0.02
ZOFK1	DIGHTON	KS	0.02E	0.02
ZODK1	DIGHTON	KS	0.02E	0.02
DRGN1	DORCHESTER, BIG BLUE	NE	0.02E	0.02
ERNM8	EASTERN CRSSNG	MT	0.02E	0.02
KCRW4	ELK MNT 12ESE ROCK C	CO	0.02	0.02
WHSM8	ELK PEAK SNOTEL	MT	0.02E	0.02
FAPM7	FAIR PLAY 1SW	MO	0.02E	0.02

FABN1	FAIRBURY 5S	NE	0.02E	0.02
FRBN1	FAIRBURY, LTL BLUE R	NE	0.02	0.02
FAIN8	FAIRFIELD	ND	0.02E	0.02
FLTM8	FLATWILLOW 4ENE	MT	0.02E	0.02
FRKK1	FRANKFORT	KS	0.02E	0.02
FKFK1	FRANKFORT, BLACK VERM	KS	0.02E	0.02
FNDN1	FRIEND 3E	NE	0.02	0.02
FOD	FT DODGE	IA	0.02E	0.02
GRSN1	GRESHAM 3W	NE	0.02E	0.02
GRVW4	GROS VENTRE SUMMIT	WY	0.02E	0.02
HLLM7	HALLTOWN	MO	0.02E	0.02
HFDN8	HANNAFORD	ND	0.02E	0.02
HLMM8	HARLEM 20S	MT	0.02E	0.02
HRNN1	HARRISON	NE	0.02E	0.02
JPSN1	HARRISON 4NW	NE	0.02E	0.02
HRRN1	HARRISON 9W	NE	0.02E	0.02
GLUN8	HEART BUTTE DAM	ND	0.02	0.02
HYRW4	HYATT RANCH	WY	0.02E	0.02
IMPN1	IMPERIAL	NE	0.02	0.02
IRHW4	IRISH ROCK	WY	0.02E	0.02
ISWI1	ISLAND PARK	ID	0.02E	0.02
KSLN8	KENSAL 8NNW, JAMES R	ND	0.02E	0.02
KDRS2	KIDDER	SD	0.02E	0.02
NOBM8	KNOBS 4SW	MT	0.02E	0.02
KZBS2	KRANZBURG	SD	0.02E	0.02
LCRW4	LARSEN CREEK SNOTEL	WY	0.02E	0.02
HCMC2	LEADVILLE 8SW	CO	0.02E	0.02
LEAK1	LEAWOOD	KS	0.02E	0.02
LOLS2	LEOLA 1E	SD	0.02E	0.02
LMCN1	LINCOLN 4WSW	NE	0.02	0.02
LOCM7	LOCKWOOD 3NW	MO	0.02E	0.02
LOMM8	LOMA 1WNW	MT	0.02E	0.02
LUPN1	LOUP CITY, MID LOUP	NE	0.02	0.02
P69	LOWELL	ID	0.02	0.02
LURK1	LURAY	KS	0.02E	0.02
LSKW4	LUSK 2SW	WY	0.02E	0.02
LBZM7	MACON, LTL CHARITON	MO	0.02	0.02
MNTK1	MANHATTAN 4N	KS	0.02	0.02
MTHN8	MARMARTH	ND	0.02E	0.02
MCLM8	MC LEOD 12SSW	MT	0.02E	0.02
MCKN1	MCCOOK, DRIFTWOOD CR	NE	0.02E	0.02
PROW4	MCFADDEN 2NNE	WY	0.02E	0.02
P28	MEDICINE LODGE 2E	KS	0.02	0.02

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MDAN8	MEDORA, LTL MISSOURI	ND	0.02E	0.02
CUST021	MERNA 11W	NE	0.02E	0.02
MLNS2	MILLTOWN, JAMES R	SD	0.02E	0.02
BOUM8	MONTANA DEV CENTER	MT	0.02E	0.02
MRLK1	MORLAND 2N	KS	0.02E	0.02
NTAK1	NATOMA	KS	0.02E	0.02
NRDN8	NEW ROCKFORD, JAMES R	ND	0.02E	0.02
OPEK1	O P #1300 (CORP WDS)	KS	0.02E	0.02

OPFK1	O P #1400 (WATFD PL)	KS	0.02E	0.02
OLDW4	OLD BATTLE	WY	0.02E	0.02
VVV	ORTONVILLE	MN	0.02E	0.02
OSBK1	OSBORNE, SOLOMON R	KS	0.02	0.02
PAIN1	PALISADE	NE	0.02	0.02
PARS2	PARKSTON 8ENE	SD	0.02E	0.02
PLKN1	POLK	NE	0.02E	0.02
ZRGK1	RANSOM	KS	0.02E	0.02
RALS2	RAUVILLE 2W	SD	0.02E	0.02
RDTN8	RICHARDTON ABBEY	ND	0.02E	0.02
SSKW4	RIVERSIDE, SPRING CR	WY	0.02E	0.02
ROBM8	ROBERTS 1N	MT	0.02E	0.02
WYCR5	ROCK RIVER 10WSW	WY	0.02E	0.02
OSCM8	ROY 2SE RAWS	MT	0.02E	0.02
ALRM8	RUBY DAM	MT	0.02E	0.02
RYDM8	RUDYARD 19S	MT	0.02E	0.02
RDYM8	RUDYARD 21N	MT	0.02E	0.02
SAOM8	SACO 1NNW	MT	0.02E	0.02
SACM8	SACO 7NE, MILK R	MT	0.02	0.02
SLN	SALINA	KS	0.02	0.02
ZVIK1	SCOTT CITY 14WNW	KS	0.02E	0.02
SHYN8	SHEYENNE	ND	0.02E	0.02
SINN1	SIDNEY 1SSE	NE	0.02E	0.02
SDYN1	SIDNEY 2S	NE	0.02E	0.02
SNY	SIDNEY AIRPORT	NE	0.02	0.02
SMOK1	SMOLAN 1NE	KS	0.02E	0.02
SPLN1	ST PAUL #2 MID LOUP	NE	0.02E	0.02
STPN1	ST PAUL 4N	NE	0.02	0.02
SPUN1	ST PAUL, NORTH LOUP	NE	0.02E	0.02
SPHN1	STAPLEHURST 3WNW	NE	0.02E	0.02
STRC2	STERLING	CO	0.02E	0.02
SFDS2	STRATFORD, JAMES R	SD	0.02E	0.02
TLRN8	TAYLOR 7NNW	ND	0.02E	0.02
TFRW4	TEN SLEEP 4NE	WY	0.02E	0.02
TWKN8	TEWAUKON RAWS	ND	0.02E	0.02
TSTM8	TOSTON 5NW AGRIMET	MT	0.02E	0.02
TOSM8	TOSTON, MISSOURI R	MT	0.02E	0.02
TULS2	TULARE, TURTLE CR	SD	0.02E	0.02
UTCN1	UTICA	NE	0.02	0.02
WLDC2	WALDEN	CO	0.02E	0.02
WADC2	WALDEN	CO	0.02E	0.02
WAMW4	WAMSUTTER	WY	0.02E	0.02
WRNS2	WARNER	SD	0.02E	0.02
WATN8	WATFORD CITY 14S	ND	0.02	0.02
WCYN8	WATFORD CITY 1S	ND	0.02E	0.02

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STATION				PERIOD
ID	DESCRIPTION	STATE	06/16	SUM
WFDC2	WILLIAMS FORK DAM	CO	0.02E	0.02
WEFN8	WILLISTON EXP FARM	ND	0.02E	0.02
ISN	WILLISTON INTL APT	ND	0.02	0.02
LMCN8	WILLISTON, LTL MUDDY	ND	0.02E	0.02
WLTN8	WILLISTON, MISSOURI R	ND	0.02E	0.02
WINM8	WINIFRED	MT	0.02E	0.02



WITM8	WINNETT 12SW	MT	0.02E	0.02
WNEM8	WINNETT 6NNE	MT	0.02E	0.02
WNTM8	WINNETT 8ESE	MT	0.02E	0.02
WIAK1	WINONA 8W	KS	0.02E	0.02
WINK1	WINONA 8W	KS	0.02E	0.02
WDBK1	WOODBINE, LYONS CR	KS	0.02E	0.02
BHMM8	WYOLA 25WSW	MT	0.02	0.02
ZRCM8	ZURICH DIVERSION	MT	0.02E	0.02
ABES2	ABERDEEN 4NW	SD	0.01E	0.01
KGIS2	ABERDEEN 5W	SD	0.01E	0.01
AMNN8	ALMONT	ND	0.01E	0.01
ALTN8	ALMONT, BIG MUDDY CR	ND	0.01E	0.01
CUST014	ANSELMO 12WSW	NE	0.01E	0.01
ANSN1	ANSELMO 2SE	NE	0.01E	0.01
CUST015	ANSELMO 9NW	NE	0.01E	0.01
ARCN1	ARCADIA	NE	0.01E	0.01
ARWN8	ARROWWOOD LAKE	ND	0.01E	0.01
ATLM7	ATLANTA	MO	0.01E	0.01
ATAM7	ATLANTA RAWS	MO	0.01E	0.01
CRDK1	AUGULIS, RICH	KS	0.01E	0.01
PISM8	AUGUSTA 20NNW	MT	0.01E	0.01
AVCM5	AVOCA	MN	0.01E	0.01
BNEM8	BABB 6NE	MT	0.01E	0.01
BLZC2	BALZAC	CO	0.01E	0.01
BTWM8	BELLTOWER	MT	0.01E	0.01
CUST022	BERWYN 4NNE	NE	0.01E	0.01
BETS2	BETHLEHEM CAVE	SD	0.01E	0.01
BSTM8	BIG SKY RESORT	MT	0.01E	0.01
BLRK1	BLUE RAPIDS	KS	0.01E	0.01
BRPK1	BLUE RAPIDS	KS	0.01	0.01
EBMM8	BOULDER MINE SNOTEL	MT	0.01E	0.01
BOWN8	BOWMAN	ND	0.01E	0.01
BOMN8	BOWMAN 3W	ND	0.01E	0.01
BRDM8	BREDETTE	MT	0.01E	0.01
BRNS2	BRITTON	SD	0.01E	0.01
BRIS2	BRITTON	SD	0.01E	0.01
BRTS2	BRITTON 9NW	SD	0.01E	0.01
BRTM8	BRITTON SPRINGS	MT	0.01E	0.01
BRKN1	BROKEN BOW #2	NE	0.01E	0.01
BKNN1	BROKEN BOW 2W	NE	0.01E	0.01
BBW	BROKEN BOW 2W	NE	0.01	0.01
BEVK1	BROOKVILLE	KS	0.01E	0.01
BKVK1	BROOKVILLE	KS	0.01E	0.01
BUKC2	BUCKEYE	CO	0.01E	0.01
COLR675	BUCKEYE 5NNE	CO	0.01E	0.01
BLBW4	BUFFALO BILL DAM	WY	0.01E	0.01
BURN1	BURCHARD	NE	0.01E	0.01

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STATION				PERIOD
ID	DESCRIPTION	STATE	06/16	SUM
BRLC2	BURLINGTON	CO	0.01E	0.01
BTKM8	BURNT CREEK RAWS	MT	0.01E	0.01
27D	CANBY	MN	0.01E	0.01
CYNM8	CANYON FERRY DAM	MT	0.01E	0.01

CGI	CAPE GIRARDEAU AP	MO	0.01	0.01
CARN8	CARRINGTON	ND	0.01E	0.01
CRGN8	CARRINGTON 4N	ND	0.01E	0.01
CANN8	CARSON	ND	0.01E	0.01
CRSN8	CARSON, ANTELOPE CR	ND	0.01E	0.01
CSEM8	CASCADE 20SSE	MT	0.01E	0.01
OACK1	CEDAR BLUFF DAM	KS	0.01E	0.01
ELSK1	CEDAR BLUFF DAM 4NNE	KS	0.01E	0.01
COUM8	CHOTEAU	MT	0.01E	0.01
CHRW4	CHRISTINA LAKE	WY	0.01E	0.01
CHGW4	CHUGWATER	WY	0.01	0.01
CCRK1	CLAY CENTER	KS	0.01E	0.01
CLNK1	CLAYTON, PRAIRIE DOG	KS	0.01E	0.01
OBAW4	CODY 12SE	WY	0.01E	0.01
VALW4	CODY 34SW	WY	0.01E	0.01
COOW4	CODY 5SE	WY	0.01E	0.01
CLYK1	COLLYER 10S	KS	0.01E	0.01
COLM8	COLSTRIP	MT	0.01E	0.01
OLU	COLUMBUS	NE	0.01	0.01
COLN1	COLUMBUS 3NE	NE	0.01E	0.01
CLBN1	COLUMBUS, SHELL CR	NE	0.01E	0.01
CNDS2	CONDE	SD	0.01E	0.01
COUN8	COURTENAY 1NW	ND	0.01E	0.01
CTB	CUT BANK AIRPORT	MT	0.01	0.01
DMRK1	DAMAR, SF SOLOMON R	KS	0.01E	0.01
DERM8	DEER LODGE 3W	MT	0.01E	0.01
DTON1	DENTON 2N	NE	0.01E	0.01
DENN1	DENTON 4E	NE	0.01E	0.01
GAGE022	DILLER 3E	NE	0.01E	0.01
DODM8	DODSON	MT	0.01E	0.01
DMRM8	DODSON 2W, MILK R	MT	0.01E	0.01
DNCN1	DUNCAN 2S, PLATTE R	NE	0.01E	0.01
EGLC2	EAGLE 13W	CO	0.01E	0.01
DCRM8	EAST GLACIER 8SE	MT	0.01	0.01
EDMN8	EDMUNDS ARROWWOOD	ND	0.01E	0.01
EGNN8	ELGIN	ND	0.01E	0.01
ELMW4	ELK MOUNTAIN	WY	0.01E	0.01
ZEHK1	ELLIS 8S	KS	0.01E	0.01
EMDN1	EMERALD 1W	NE	0.01E	0.01
ERLN1	EMERALD 2NW	NE	0.01E	0.01
ENSN1	ENDERS, FRENCHMAN CR	NE	0.01E	0.01
EPPN8	EPPING	ND	0.01E	0.01
FCTK1	FACT 3W	KS	0.01	0.01
COPK15	FAIRPLAY 3WNW	CO	0.01E	0.01
FMMC2	FLEMING 3SW	CO	0.01E	0.01
FLEC2	FLEMING AMRAD	CO	0.01E	0.01
FWWM8	FORKS 4NNE	MT	0.01E	0.01
FTBM8	FORT BENTON	MT	0.01E	0.01
FRON1	FORT ROBINSON	NE	0.01E	0.01

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STATION			PERIOD
ID	DESCRIPTION	STATE	SUM
FOSI4	FOSTORIA	IA	0.01E 0.01
FSTK1	FOSTORIA 7NW	KS	0.01E 0.01

FRZC2	FRASER	CO	0.01E	0.01
FRAC2	FRASER 6W	CO	0.01E	0.01
FRDM8	FRENCHMAN DAM	MT	0.01E	0.01
FTRN8	FT RANSOM 4NNE	ND	0.01E	0.01
GTAK1	GALATIA 4E	KS	0.01E	0.01
GALS2	GALENA	SD	0.01E	0.01
GLNS2	GALENA, BEAR BUTTE C	SD	0.01E	0.01
GDNS2	GARDEN CITY	SD	0.01E	0.01
GARN1	GARLAND	NE	0.01E	0.01
GRYS2	GARY 4S	SD	0.01E	0.01
BRAM8	GEYSER 7NE RAWS	MT	0.01E	0.01
AGSM8	GIBSON DAM	MT	0.01E	0.01
GDMM8	GIBSON LAKE	MT	0.01E	0.01
GLNN8	GLEN ULLIN	ND	0.01E	0.01
GDVN8	GOLDEN VALLEY 10S	ND	0.01E	0.01
DDTK1	GOODLAND	KS	0.01	0.01
DBZ	GOODLAND 4W	KS	0.01E	0.01
RDR	GRAND FORKS AFB	ND	0.01	0.01
GRBN8	GRASSY BUTTE 2ENE	ND	0.01E	0.01
GURW4	GUERNSEY 2NW	WY	0.01E	0.01
GUEW4	GUERNSEY DAM	WY	0.01E	0.01
CHEY002	GURLEY 6SE	NE	0.01E	0.01
HBGN1	HARRISBURG 4SSW	NE	0.01	0.01
ZIMN1	HARRISON 9NE	NE	0.01E	0.01
MIMN1	HARRISON 9NE	NE	0.01E	0.01
HLKI4	HAVELOCK	IA	0.01E	0.01
ZEAK1	HAYS 11NE	KS	0.01E	0.01
ZEMK1	HAYS 9WSW	KS	0.01E	0.01
TCHN8	HEART R ABV TSCHIDA	ND	0.01E	0.01
HEBN8	HEBRON	ND	0.01E	0.01
CFRM8	HELENA 15E	MT	0.01E	0.01
HRWM8	HELENA 3N RAWS	MT	0.01E	0.01
HGRM8	HILGER	MT	0.01E	0.01
PNWS2	HILLAND 2NW	SD	0.01E	0.01
HBGK1	HOLLENBERG, LTL BLUE	KS	0.01E	0.01
HSMM8	HYSHAM 25SSE	MT	0.01E	0.01
IML	IMPERIAL	NE	0.01	0.01
INNK1	INMAN	KS	0.01E	0.01
JMS	JAMESTOWN AIRPORT	ND	0.01	0.01
JTWN8	JAMESTOWN HOSPITAL	ND	0.01	0.01
JMSN8	JAMESTOWN, JAMES R	ND	0.01E	0.01
JRMK1	JEROME 1S	KS	0.01E	0.01
JLBC2	JULESBURG	CO	0.01E	0.01
JUBC2	JULESBURG CHANNEL #1	CO	0.01E	0.01
JBGC2	JULESBURG RETURN	CO	0.01	0.01
JULC2	JULESBURG, CHAN #2	CO	0.01E	0.01
3JC	JUNCTION CITY	KS	0.01E	0.01
JUCK1	JUNCTION CITY 4SSW	KS	0.01E	0.01
KTHN8	KATHRYN	ND	0.01E	0.01
KNEN8	KEENE 3S	ND	0.01E	0.01
LPTC2	LA PORTE	CO	0.01E	0.01

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LBNM5	LAKE BENTON	MN	0.01E	0.01
LKWM5	LAKE WILSON	MN	0.01E	0.01
LMRN1	LAMAR 3SSE	NE	0.01E	0.01
LCKW4	LANCE CREEK 1W	WY	0.01E	0.01
RBYM8	LAURIN 2SW	MT	0.01E	0.01
STLC2	LEROY 9WSW	CO	0.01E	0.01
LWT	LEWISTOWN AIRPORT	MT	0.01E	0.01
ZUFK1	LIEBENTHAL	KS	0.01E	0.01
LSCN1	LINCOLN 7NW, SALT CR	NE	0.01	0.01
LNLN1	LINCOLN FIRE STA 13	NE	0.01E	0.01
LBNB1	LINCOLN FIRE STA 3	NE	0.01E	0.01
LHBN1	LINCOLN, HAINES BR	NE	0.01E	0.01
SHEM001	LITCHFIELD 4N	NE	0.01E	0.01
LTHN8	LITCHVILLE 2NW	ND	0.01E	0.01
LIVC2	LIVERMORE, POUDRE R	CO	0.01E	0.01
LDGN1	LODGEPOLE	NE	0.01E	0.01
LLFM8	LOGAN 1E	MT	0.01E	0.01
LNGM8	LOGAN 2W	MT	0.01E	0.01
LBRM7	LONG BRANCH RES	MO	0.01	0.01
RJTW4	LUSK 25NE	WY	0.01E	0.01
MDKN8	MADDOCK	ND	0.01E	0.01
MAAM8	MALTA #2	MT	0.01E	0.01
MTSM8	MALTA 13SW	MT	0.01E	0.01
QADW4	MAMMOTH 25WSW	WY	0.01E	0.01
MHTK1	MANHATTAN	KS	0.01	0.01
MHKK1	MANHATTAN, KANSAS R	KS	0.01E	0.01
MHLN8	MARSHALL, KNIFE R	ND	0.01E	0.01
MASN1	MASON CITY	NE	0.01E	0.01
MTEW4	MEETEETSE	WY	0.01E	0.01
MERC2	MERINO 7WNW	CO	0.01E	0.01
MLFK1	MILFORD DAM	KS	0.01E	0.01
MIFI4	MILFORD, LTL SIOUX R	IA	0.01E	0.01
MLI	MOLINE	IL	0.01	0.01
NWEN8	NEW ENGLAND	ND	0.01E	0.01
EWK	NEWTON AIRPORT	KS	0.01E	0.01
NRLN1	NORTH LOUP	NE	0.01E	0.01
OPGK1	O P #1600 (HAWTH VY)	KS	0.01E	0.01
OGLN1	OGALLALA	NE	0.01E	0.01
FOFW4	OLD FAITHFUL	WY	0.01E	0.01
OLFW4	OLD FAITHFUL	WY	0.01E	0.01
OFAW4	OLD FAITHFUL	WY	0.01E	0.01
ORHM8	OPHEIM 21NW, ROCK CR	MT	0.01E	0.01
KSJO15	OVERLAND PARK 4NNW	KS	0.01E	0.01
OVIC2	OVID	CO	0.01E	0.01
PADC2	PADRONI	CO	0.01E	0.01
PACK1	PALCO	KS	0.01E	0.01
PALN1	PALISADE, FRENCHMAN	NE	0.01	0.01
PRLK1	PARALLEL	KS	0.01E	0.01
PARN1	PARKS 17N	NE	0.01E	0.01
PNNS2	PINNACLES RANGER STA	SD	0.01E	0.01
PVRN1	PLAINSVIEW RANCH	NE	0.01E	0.01
PTRN1	POTTER	NE	0.01E	0.01
PRWC2	PREWITT RESERVOIR	CO	0.01E	0.01

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ID	DESCRIPTION	STATE	06/16	SUM
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UIN	QUINCY	IL	0.01	0.01
WICC2	RAND 7SW RAW	CO	0.01	0.01
RDHK1	RANDOLPH 4WNW	KS	0.01E	0.01
RDPK1	RANDOLPH, FANCY CR	KS	0.01E	0.01
VAVS2	RAPID CITY 11W	SD	0.01	0.01
UPCS2	RAPID CITY 13W	SD	0.01E	0.01
BIGS2	RAPID CITY, RAPID CR	SD	0.01	0.01
REDM8	RED LODGE 6SSW	MT	0.01E	0.01
OWLS2	RED OWL	SD	0.01E	0.01
RHAN8	RHAME 8S	ND	0.01E	0.01
RICN8	RICHARDTON, HEART R	ND	0.01E	0.01
RIDM8	RIDGEWAY 1S	MT	0.01E	0.01
ERVW4	RIVERSIDE	WY	0.01E	0.01
RWC14	ROCKWELL CITY #2	IA	0.01E	0.01
WREM8	ROSCOE, W ROSEBUD CR	MT	0.01E	0.01
RSLK1	RUSSELL SPRNGS 17SSW	KS	0.01E	0.01
SCNK1	SCHOENCHEN 1W	KS	0.01E	0.01
SCSK1	SCHOENCHEN 2E	KS	0.01E	0.01
ZECK1	SCHOENCHEN 6WNW	KS	0.01E	0.01
ZOMK1	SHIELDS 1NE	KS	0.01E	0.01
CHEY037	SIDNEY 14WSW	NE	0.01E	0.01
SIDN1	SIDNEY 6NNW	NE	0.01E	0.01
CHEY035	SIDNEY 7W	NE	0.01E	0.01
SFKW4	SOUTH FORK	WY	0.01E	0.01
LSSI4	SPENCER, LTL SIOUX R	IA	0.01	0.01
SET	ST CHARLES	MO	0.01	0.01
SMIN1	ST MICHAEL, S LOUP R	NE	0.01E	0.01
STPK1	ST PETER 4ENE	KS	0.01E	0.01
STTM7	ST THOMAS, OSAGE R	MO	0.01	0.01
STEC2	STERLING 5NW AMRAD	CO	0.01E	0.01
STKK1	STOCKTON 1E	KS	0.01E	0.01
SMTS2	SUMMIT	SD	0.01E	0.01
SURN1	SURPRISE	NE	0.01E	0.01
SRPN1	SURPRISE, BIG BLUE R	NE	0.01E	0.01
TOR	TORRINGTON	WY	0.01	0.01
TORW4	TORRINGTON 2NW	WY	0.01E	0.01
WYGS2	TORRINGTON 5SSW	WY	0.01E	0.01
TVLS2	TUNERVILLE	SD	0.01E	0.01
MTTK1	TUTTLE CREEK DAM	KS	0.01	0.01
TYLM5	TYLER	MN	0.01E	0.01
ULYN1	ULYSSES	NE	0.01E	0.01
VALN8	VALLEY CITY 3NNW	ND	0.01E	0.01
VBLS2	VEBLEN 3NW	SD	0.01E	0.01
VEBS2	VEBLEN 5SE	SD	0.01E	0.01
RANS2	VEBLEN 5W	SD	0.01E	0.01
PERK005	VENANGO	NE	0.01E	0.01
VTTS2	VICTOR	SD	0.01E	0.01
ZEEK1	VICTORIA 5ENE	KS	0.01E	0.01
ZEFK1	VICTORIA 7N	KS	0.01E	0.01
COLR672	VIRGINIA DALE 7SSW	CO	0.01E	0.01
WAKK1	WAKEENEY 16N	KS	0.01E	0.01
QADK1	WAKEENEY 18S	KS	0.01E	0.01
QAAK1	WAKEENEY 22SSE	KS	0.01E	0.01

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0STATION
ID      DESCRIPTION      STATE    06/16    PERIOD
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WAPW4   WAPITI 1NE             WY       0.01E    0.01
WTS2    WATERTOWN (AMRAD)      SD       0.01E    0.01
WFCN8   WATFORD CITY           ND       0.01E    0.01
WTDN8   WATFORD CITY           ND       0.01E    0.01
WACN8   WATFORD CITY 12E       ND       0.01E    0.01
WVRN1   WAVERLY                NE       0.01E    0.01
MSRC2   WELLINGTON 17NNE       CO       0.01E    0.01
UNO     WEST PLAINS            MO       0.01     0.01
HG3     WEST PLAINS            MO       0.01E    0.01
WSYM8   WEST YELLOWSTONE       MT       0.01E    0.01
WTS2    WESTPORT 3SE           SD       0.01E    0.01
WSGM8   WHITE SULPHUR 2WNW     MT       0.01E    0.01
WTRM8   WHITEWATER             MT       0.01E    0.01
PRMM8   WILD HORSE RAWS        MT       0.01E    0.01
WILM7   WILLOW SPRINGS        MO       0.01E    0.01
WTTM8   WINNETT                MT       0.01E    0.01
WNAK1   WINONA                 KS       0.01E    0.01
WPTM8   WOLF POINT 5SE         MT       0.01     0.01
WYMN1   WYMORE                 NE       0.01E    0.01
BHRM8   YELLOWTAIL DAM         MT       0.01E    0.01
YDRW4   YODER 5W               WY       0.01E    0.01
ZRTM8   ZORTMAN                MT       0.01E    0.01
DYIM8   ZORTMAN 10SW           MT       0.01E    0.01
ALDM8   ZORTMAN MINE RAWS      MT       0.01     0.01

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>>>>>>> STOP

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0      CPU    TIME USED =    0 MINUTES,  0 SECONDS

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0      CLOCK TIME USED =    0 MINUTES,  0 SECONDS

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[REDACTED] NWO

From: [REDACTED] NWD  
Sent: Thursday, June 16, 2011 12:42 PM  
To: [REDACTED] NWD02; [REDACTED] NWO  
Cc: Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWS; [REDACTED] NWS  
Subject: Re: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

[REDACTED]

NWS may be talking about Libby where they have an airflow issue for their RO. The only other powerhouses would be chief joe and Albeni Falls - I don't think either of those projects have flood tunnels,

I am HIGHLY supportive of closing RO to inspect if you get a chance, rather than waiting till July or later. I've been promoting that since we first started talking about this. All the Operation manuals assume everything works as designed. Obviously they isn't always the case. Taking the opportunity to check soon makes sense to me.

[REDACTED]

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED] NWD02  
To: [REDACTED] NWO  
Cc: Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWS;  
[REDACTED] NWS  
Sent: Thu Jun 16 10:34:16 2011  
Subject: RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED], I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and [REDACTED] Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

[REDACTED]

-----Original Message-----

From: [REDACTED] NWO  
Sent: Thursday, June 16, 2011 11:46 AM  
To: [REDACTED] NWD; [REDACTED] NWO  
Cc: [REDACTED] NWD02  
Subject: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
...continuing with the Garrison flood tunnels...

We are exploring our options at Garrison Dam with splitting releases between the flood tunnels adjacent to the power house and the spillway. Garrison has 3 large flood tunnels with a separate but adjacent stilling basin next to the 5 units for the power house.

After high flows in 1997 that were considerably lower than the current releases through the flood tunnels, we experienced cavitation problems. At some point during these extended high flows we would like to transfer all of the flood tunnel flow to the spillway and visually inspect the tunnels.

[REDACTED], structural engineer from Seattle District, was at the projects office earlier this year and had indicated that the Seattle District could not discharge, at least at some of their dams, from the spillway without also discharging from the flood tunnels due to possible problems at the power house.

We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

[REDACTED]  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE



[REDACTED] NWO

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 12:34 PM  
**To:** [REDACTED] NWO  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWS; Katz, Daniel M NWS  
**Subject:** RE: Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] I am not aware of the specific issues in Seattle District flood tunnels. I know we have issues with conduit erosion at Mud Mountain, but it does not have a powerhouse.

Fyi - [REDACTED] is the NWS Water Management Chief and Dan Katz Hydraulics Chief. They may be able to offer advice. Let me know if you would like me to forward any questions to them.

I also discussed with Jody Farhat this morning. From the Missouri River Water Management perspective, they do not have a preference in utilizing the flood tunnels over the spillway. Their issue is making the required releases.

Laila

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 11:46 AM  
**To:** [REDACTED] NWD; [REDACTED] NWO  
**Cc:** [REDACTED] NWD02  
**Subject:** Garrison Dam Flood Tunnels and Spillway (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
...continuing with the Garrison flood tunnels...

We are exploring our options at Garrison Dam with splitting releases between the flood tunnels adjacent to the power house and the spillway. Garrison has 3 large flood tunnels with a separate but adjacent stilling basin next to the 5 units for the power house.

After high flows in 1997 that were considerably lower than the current releases through the flood tunnels, we experienced cavitation problems. At some point during these extended high flows we would like to transfer all of the flood tunnel flow to the spillway and visually inspect the tunnels.

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We continue to research our EMs and other files, but haven't found anything other than the general guidance to discharge through the power house, then the flood tunnels, then the spillway. We are also doing an analysis on tail water impacts from the two discharge sources. By the end of the day, we should be releasing approximately 58,000 cfs from both the flood tunnels and the spillway.

Are you aware of Seattle's situation? other things we should be looking at? Your thoughts on shifting flow from the flood tunnels to the spillway to facilitate an inspection, or to provide a more stable tail race condition at the flood tunnels. There is a continuous effort to keep riprap positioned at the tailrace area.

Thanks,

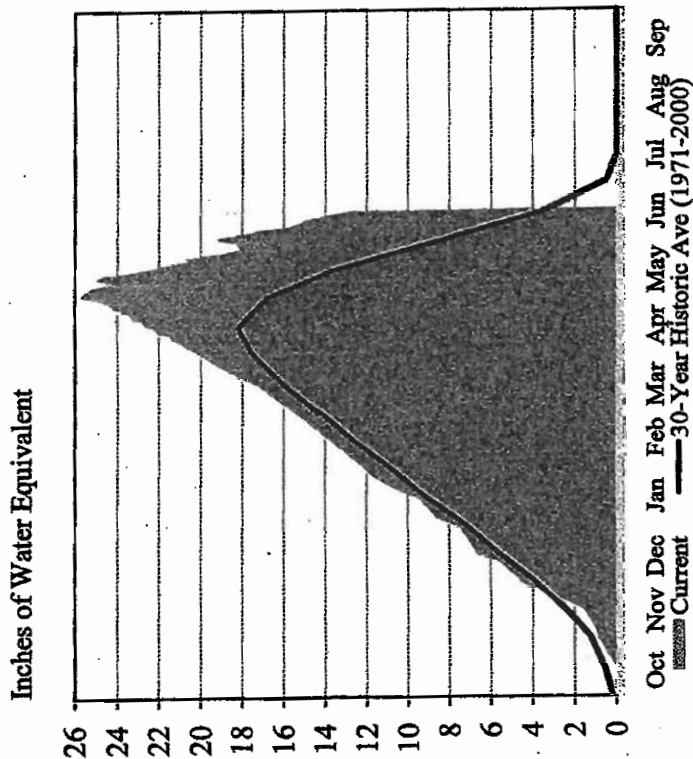
[REDACTED]  
Hydrologic Engineering Branch  
Omaha District Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

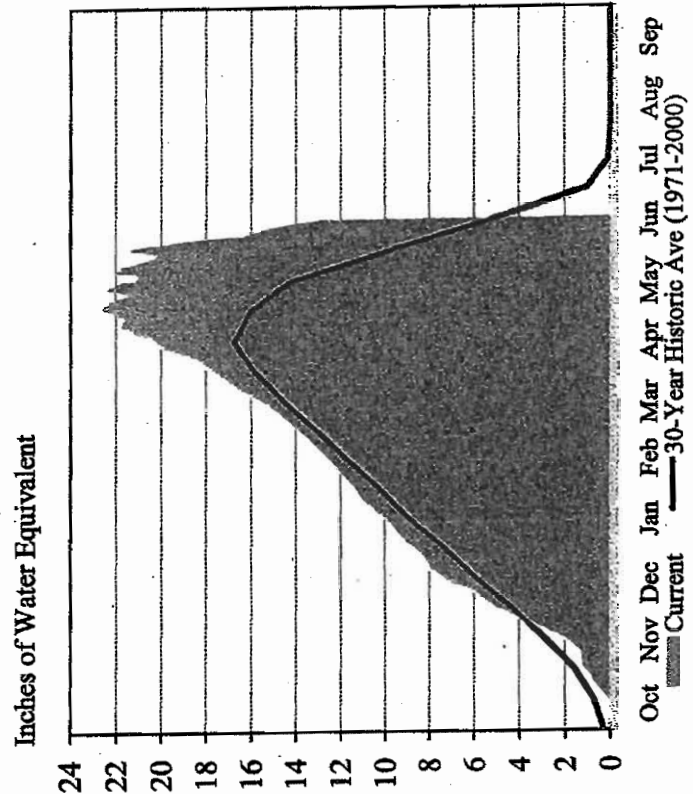
Classification: UNCLASSIFIED  
Caveats: NONE

# Missouri River Basin Mountain Snowpack Water Content 2010-2011

**Total above Fort Peck**



**Total Fort Peck to Garrison**

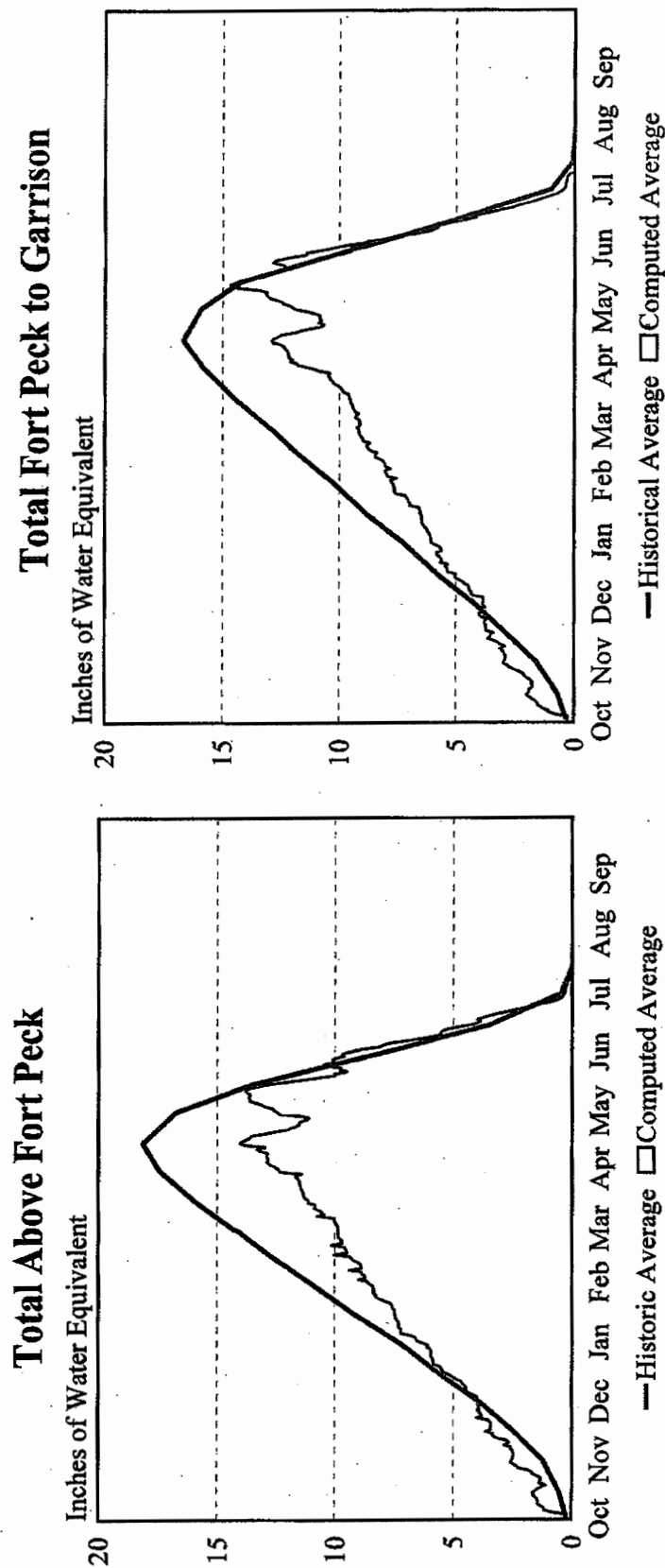


The Missouri River Basin mountain snowpack normally peaks near April 15. The mountain snowpack in both the "Total above Fort Peck" and the "Total Fort Peck to Garrison" reaches appears to have peaked on May 2 at 141 percent and 136 percent of the normal April 15 peak, respectively. The current mountain snowpack, as of June 15, is 70 percent and 78 percent of the normal April 15 peak in the "Total above Fort Peck" and the "Total Fort Peck to Garrison" reaches, respectively.

June 15, 2011

Provisional data. Subject to revision.

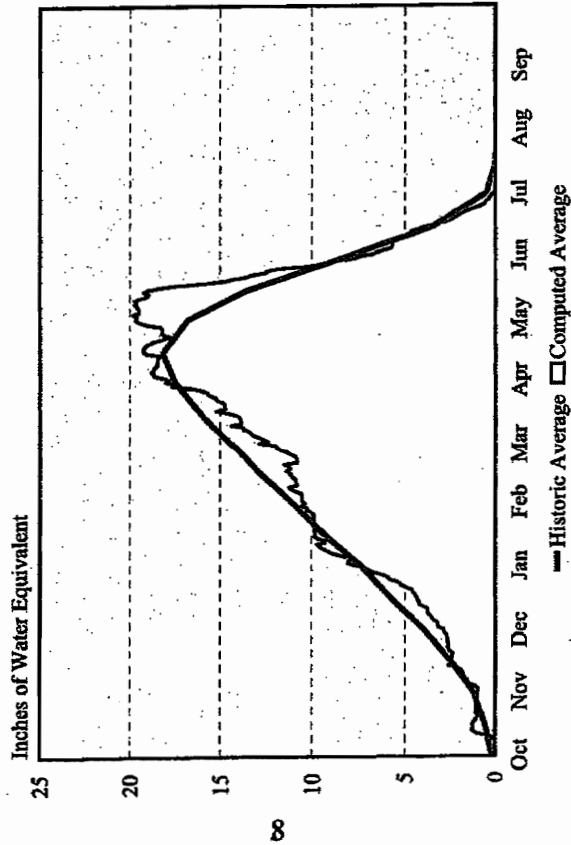
# Missouri River Basin Mountain Snowpack Water Content 2009-2010



**Figure 4.** The mountain snowpack in the reach above Fort Peck peaked on April 15 at 77% of the normal peak accumulation. The mountain snowpack in the reach between Fort Peck and Garrison peaked on May 13 at 88% of the normal peak accumulation. The Missouri River basin mountain snowpack normally peaks near April 15.

# Missouri River Basin Mountain Snowpack Water Content 2008-2009

*Total Above Fort Peck*



*Total Fort Peck to Garrison*

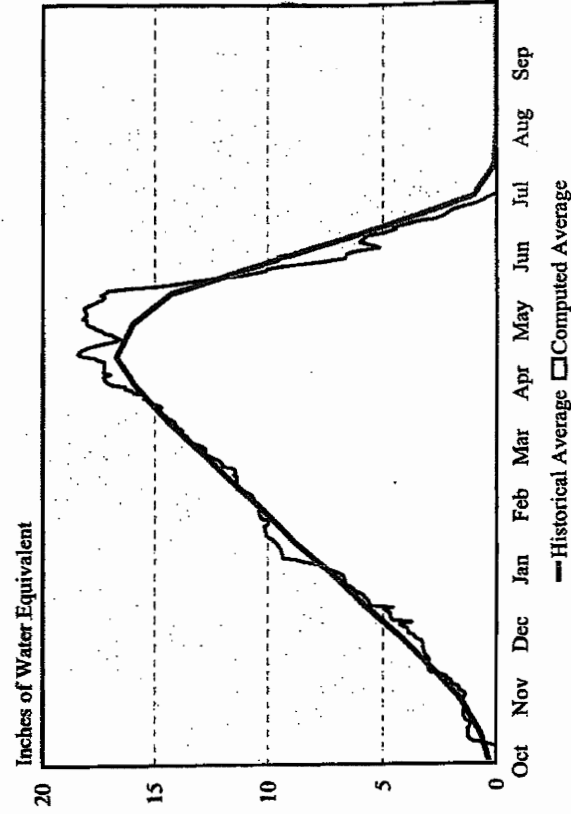
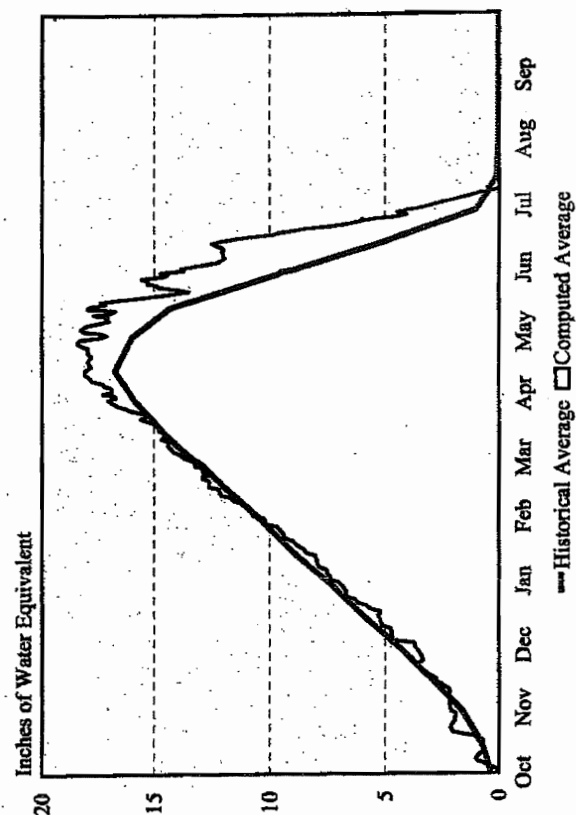


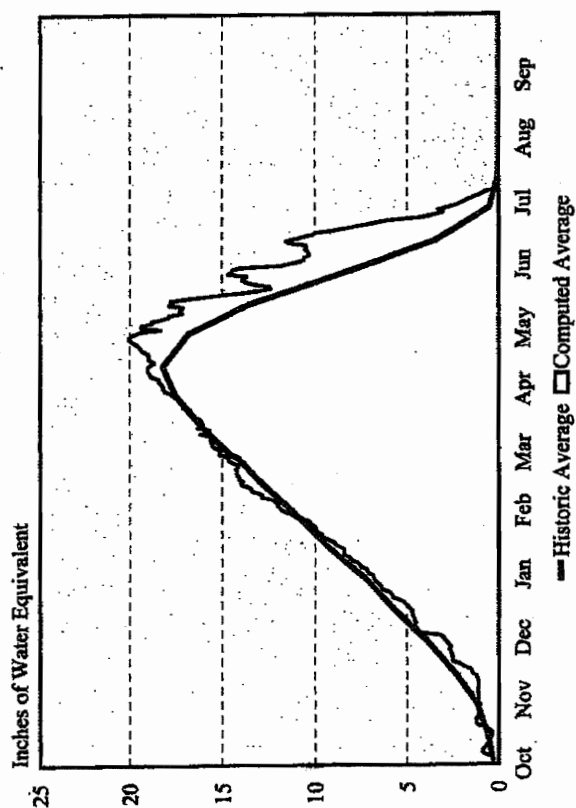
Figure 3. The mountain snowpack in the reach above Fort Peck peaked at 109% of the normal peak accumulation on May 4. The mountain snowpack in the reach between Fort Peck and Garrison peaked at 110% of the normal peak accumulation on April 15. The Missouri River basin mountain snowpack normally peaks near April 15.

# Missouri River Basin Mountain Snowpack Water Content 2007-2008

*Total Fort Peck to Garrison*



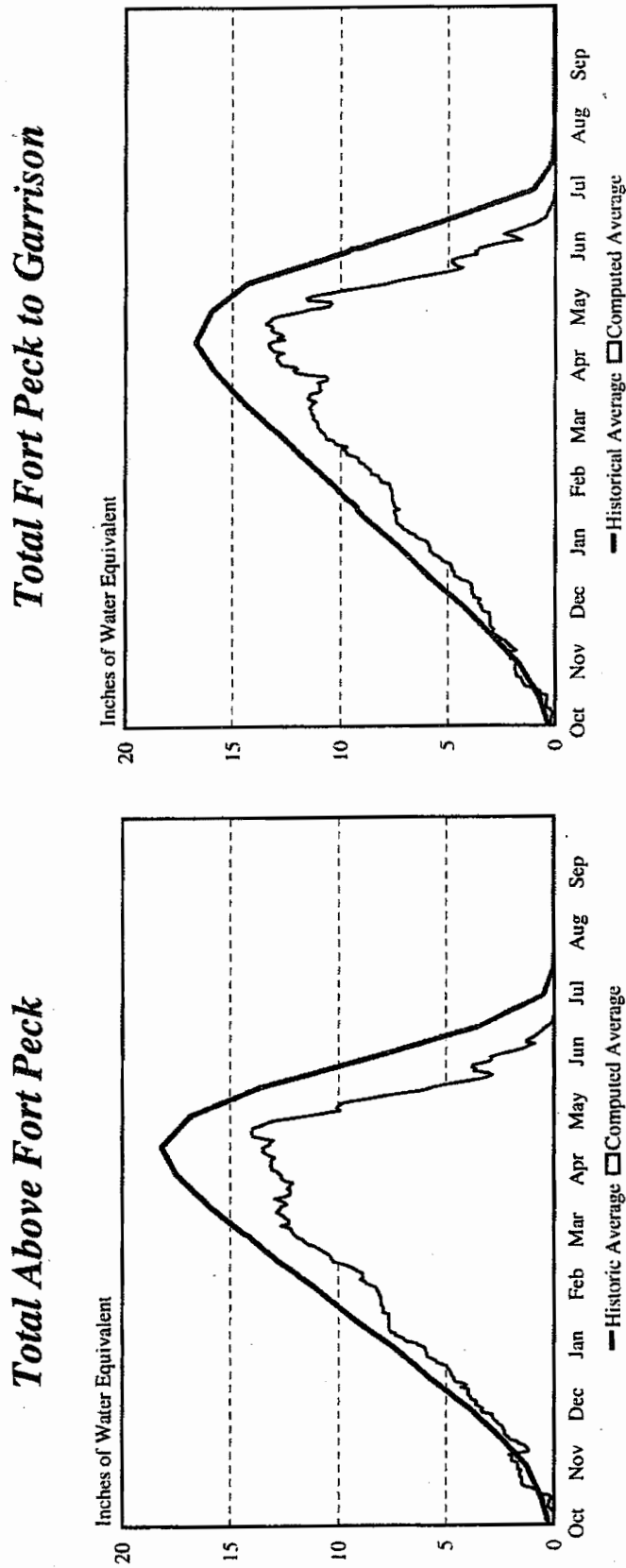
*Total Above Fort Peck*



The mountain snowpack in the reach above Fort Peck peaked at 111% of the normal peak accumulation on April 27. The mountain snowpack in the reach between Fort Peck and Garrison peaked at 110% of the normal peak accumulation on April 27. The Missouri River basin mountain snowpack normally peaks around April 15.

Figure 1

# Missouri River Basin Mountain Snowpack Water Content 2006-2007



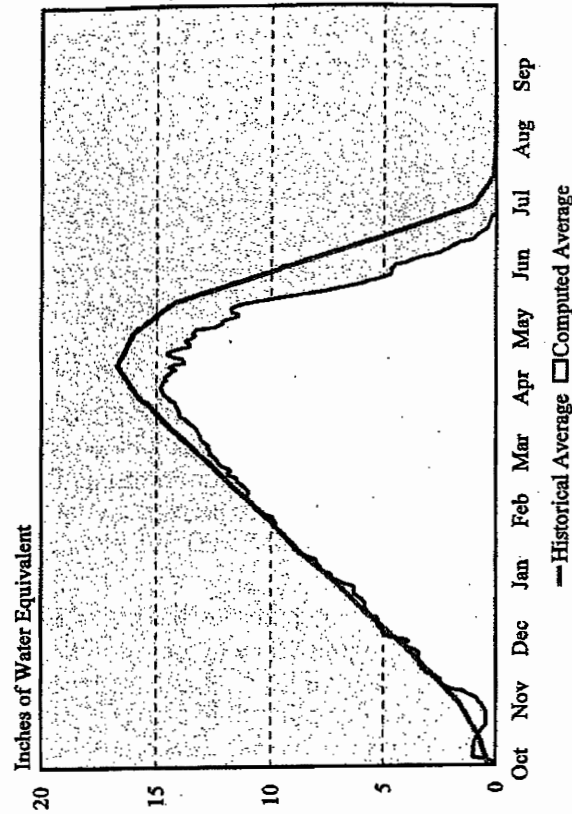
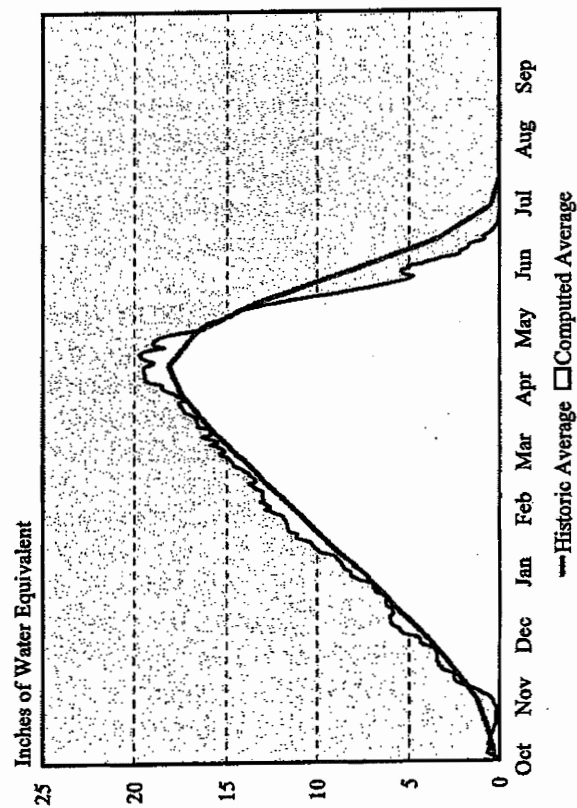
The mountain snowpack in the reach above Fort Peck peaked at 76% of the normal peak accumulation on April 22. The mountain snowpack in the reach between Fort Peck and Garrison peaked at 81% of the normal peak accumulation on April 24. The Missouri River basin mountain snowpack normally peaks near April 15.

Figure 1

# Missouri River Basin Mountain Snowpack Water Content 2005-2006

*Total Above Fort Peck*

*Total Fort Peck to Garrison*



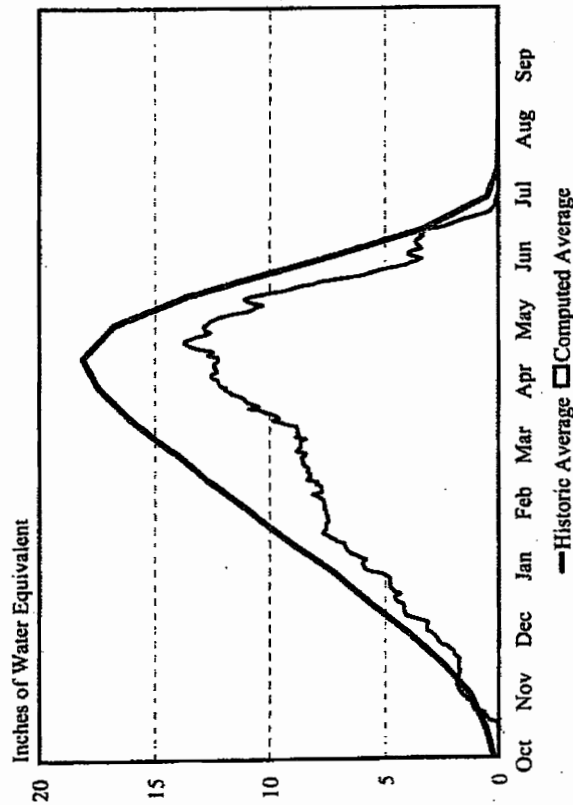
The mountain snowpack in the reach above Fort Peck peaked at 108% of the normal peak accumulation on April 20. The mountain snowpack in the reach between Fort Peck and Garrison peaked at 88% of the normal peak accumulation on April 13. The Missouri River basin mountain snowpack normally peaks near April 15.

Figure 1

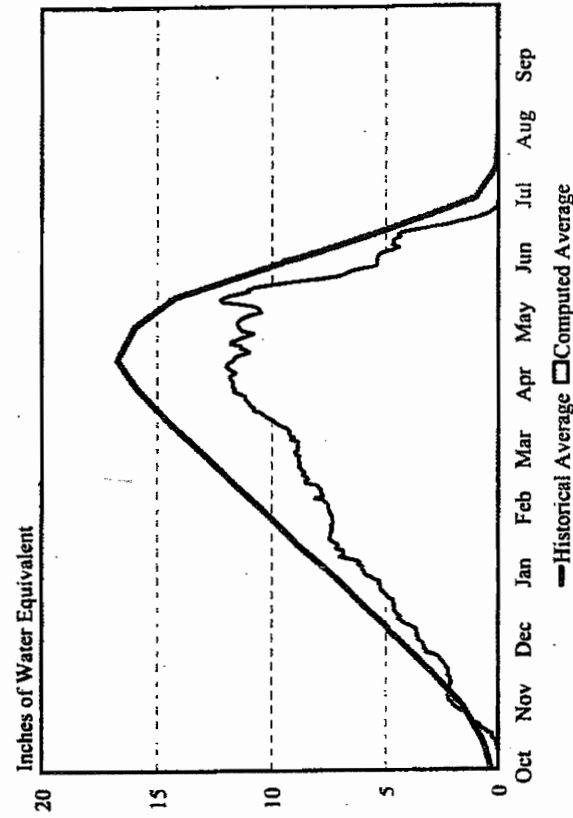


# Missouri River Basin Mountain Snowpack Water Content 2004-2005

*Total Above Fort Peck*



*Total Fort Peck to Garrison*



The Mountain Snowpack in the reach above Fort Peck peaked at 76% of the normal peak accumulation on April 22.  
 The Mountain Snowpack in the reach between Fort Peck and Garrison peaked at 73% of the normal peak accumulation on May 13.  
 The Missouri River basin Mountain Snowpack normally peaks near April 15

July 1, 2005

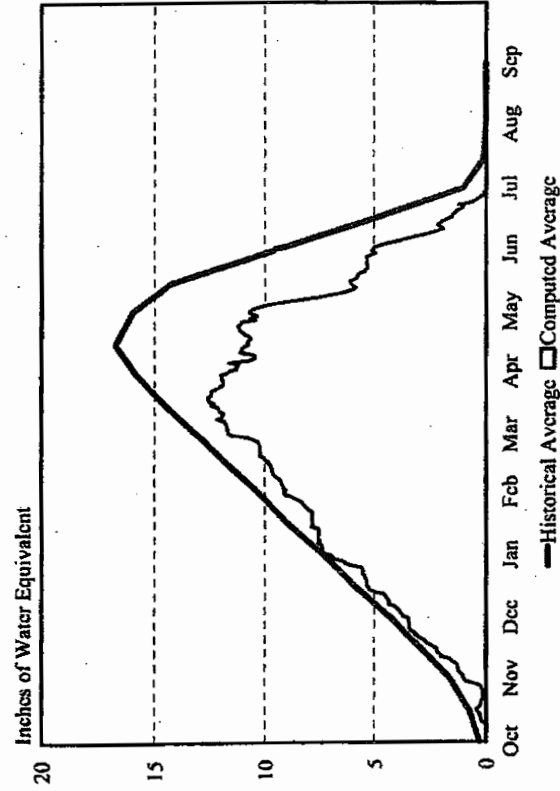
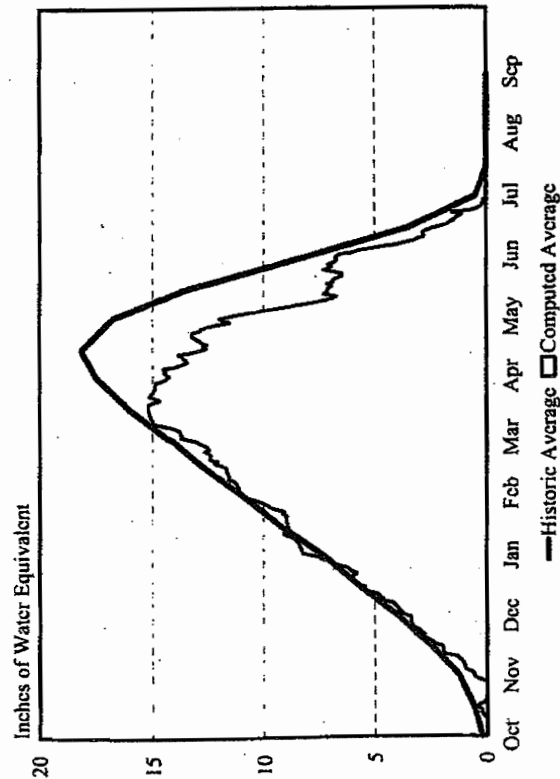
Provisional data subject to revision.

Figure 1

# Missouri River Basin Mountain Snowpack Water Content 2003-2004

*Total Above Fort Peck*

*Total Fort Peck to Garrison*



The Mountain Snowpack in the reach above Fort Peck peaked at 84% of the normal peak accumulation on March 17.

Currently 1% of this year's peak accumulation remains.

The Mountain Snowpack in the reach between Fort Peck and Garrison peaked at 75% of the normal peak accumulation on March 19.

Currently less than 1% of this year's peak accumulation remains.

The Missouri River basin Mountain Snowpack normally peaks near April 15 and 5% normally remains on July 1.

Provisional data subject to revision.

June 28, 2004

# Missouri River Basin Mountain Snowpack Water Content 2002-2003

*Total Above Fort Peck*

*Total Fort Peck to Garrison*

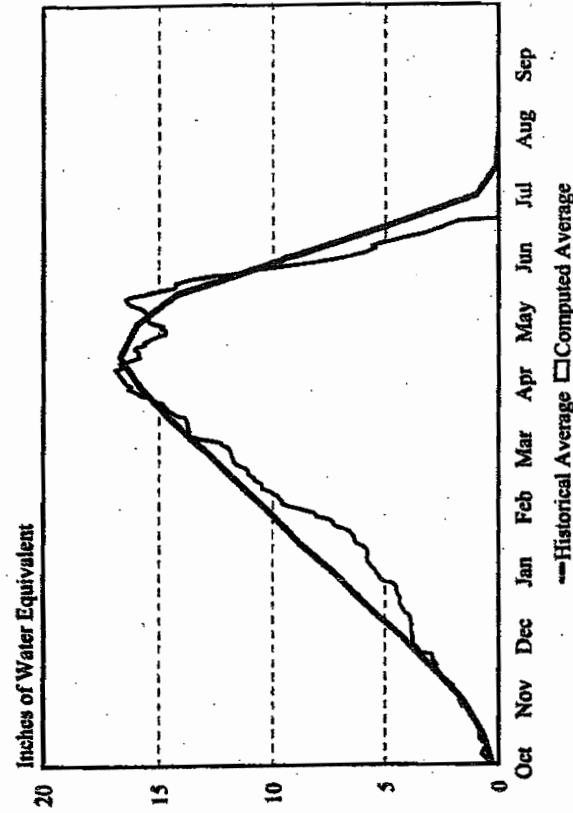
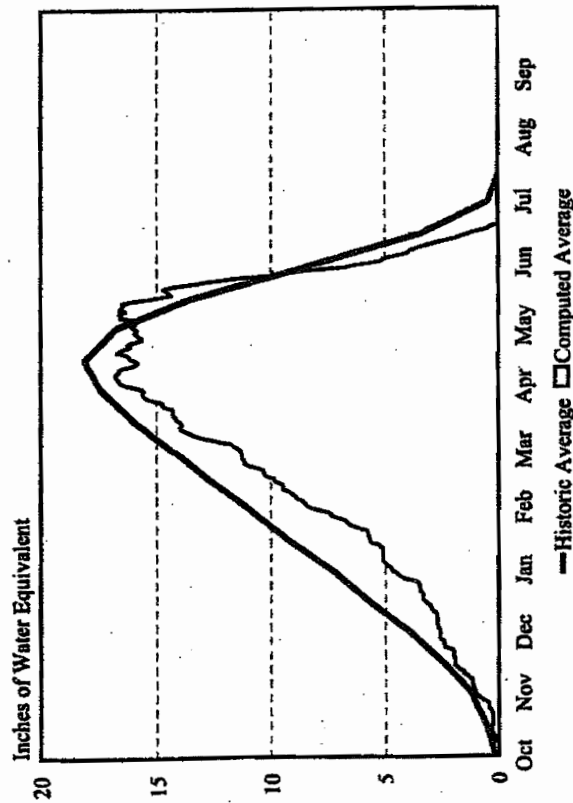


Figure 1  
8

The Mountain snowpack in the reach above Fort Peck peaked at 92% of the normal peak accumulation on April 8. Currently 0.2% of this year's peak accumulation remains.

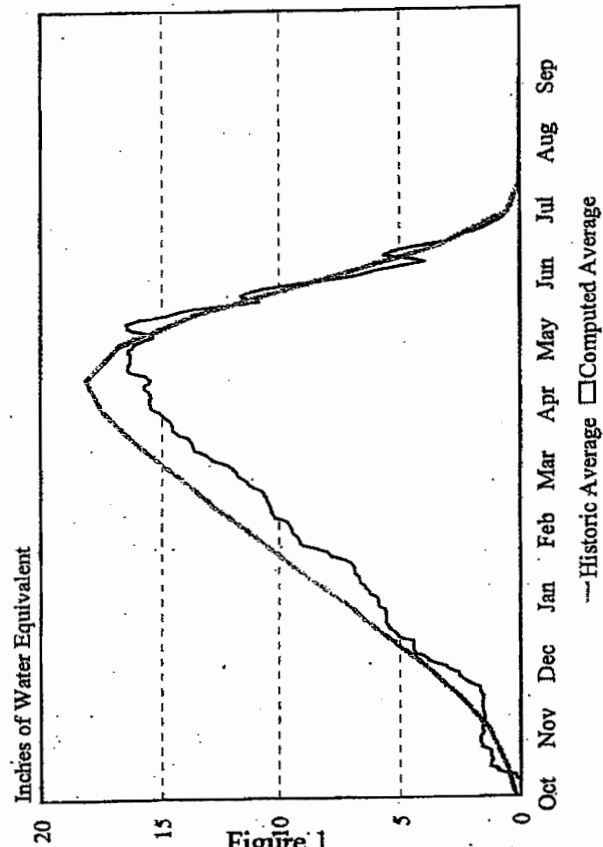
The Mountain snowpack in the reach between Fort Peck and Garrison peaked at 101% of the normal peak accumulation on April 9. Currently 9% of this year's peak accumulation remains.

Missouri River basin Mountain Snowpack normally peaks near April 15 and 25% normally remains on June 15.

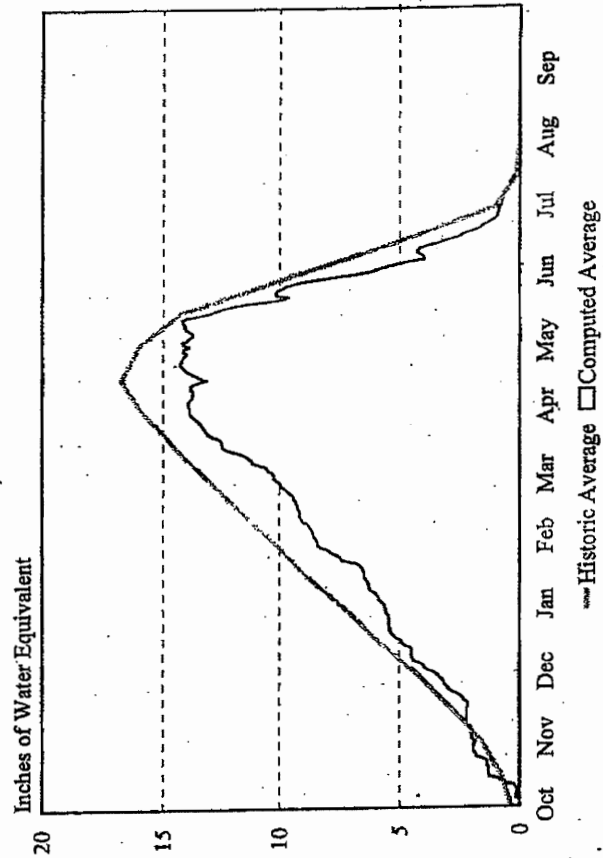
June 20, 2003

# Mountain Snowpack Water Content Missouri River Basin Winter 2001 - 2002

*Total Above Fort Peck*



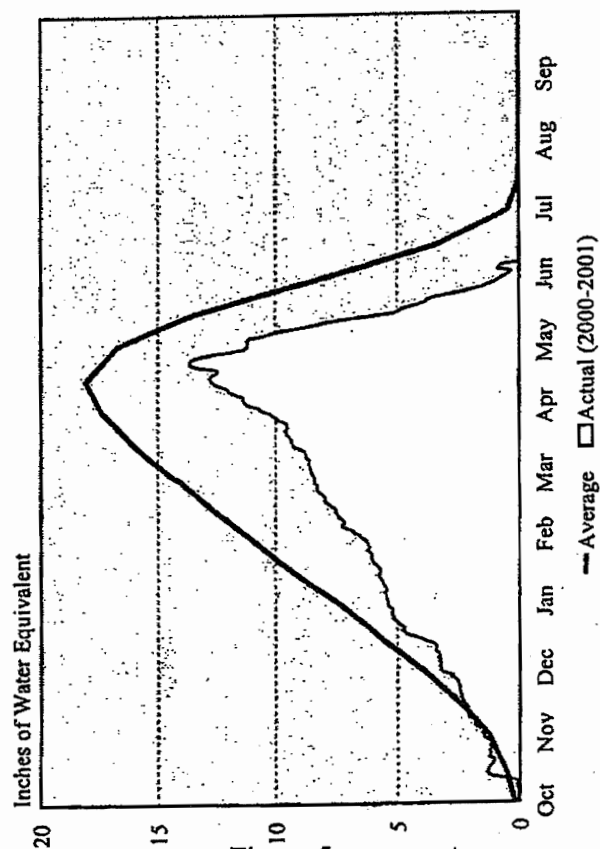
*Total Fort Peck to Garrison*



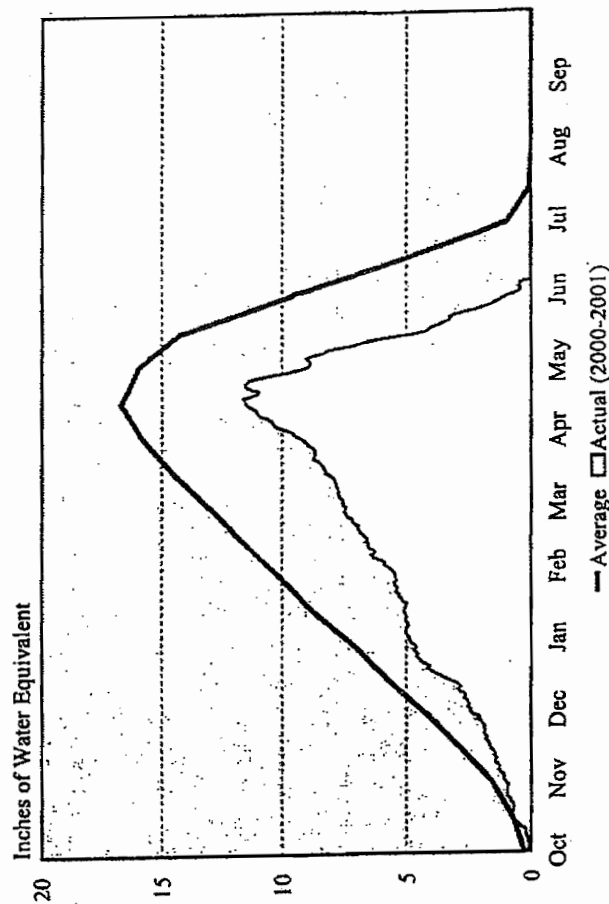
Snowpack peaked on May 11, 2002 at 91 percent of the normal peak accumulation in the reach above Fort Peck, and at 84 percent of the normal peak accumulation in the reach between Fort Peck and Garrison on April 22, 2002

# Mountain Snowpack Water Content Missouri River Basin Winter 2000 - 2001

*Total Above Fort Peck*



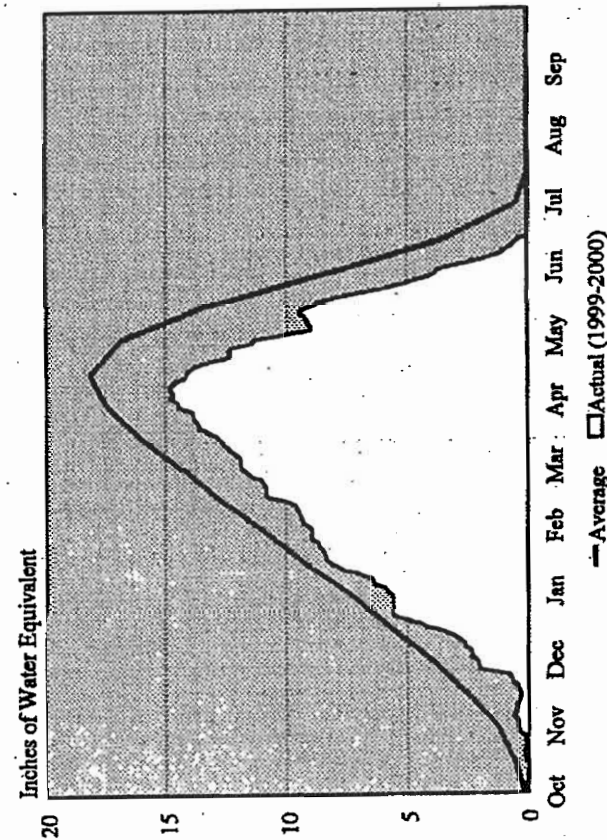
*Total Fort Peck to Garrison*



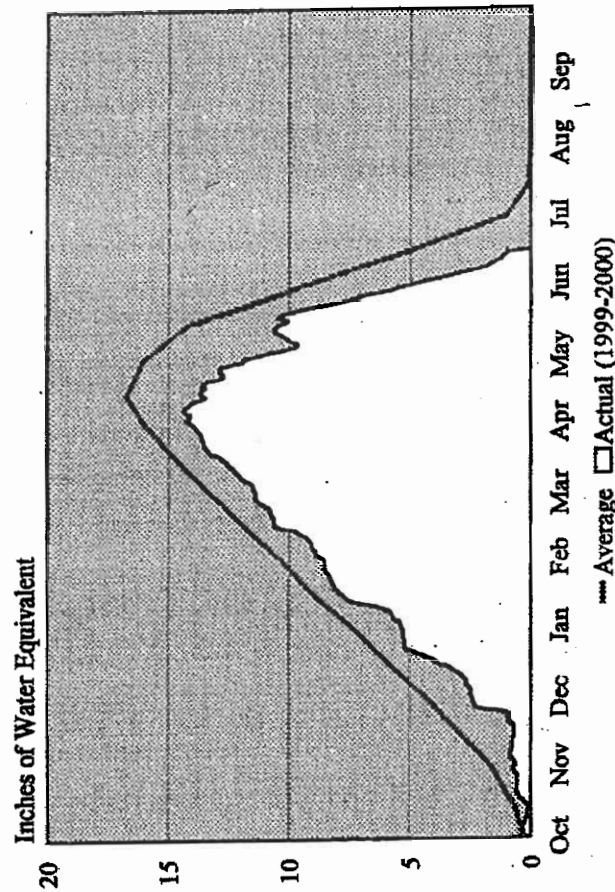
Snowpack peaked on April 22, 2001 at 75 percent of the normal peak accumulation in the reach above Fort Peck, and at 69 percent of the normal peak accumulation in the reach between Fort Peck and Garrison

# Mountain Snowpack Water Content Missouri River Basin Winter 1999 - 2000

*Total Above Fort Peck*



*Total Fort Peck to Garrison*

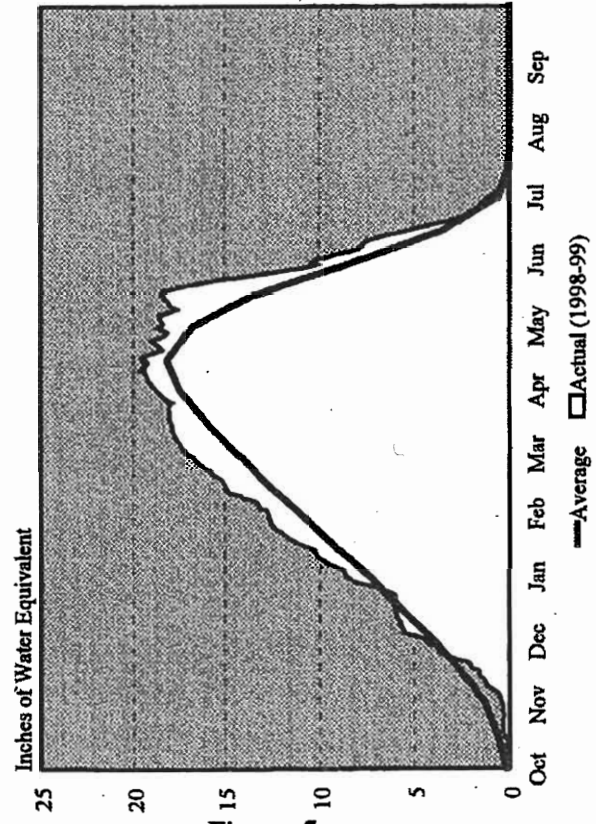


Snowpack peaked on April 8, 2000 at 82 percent of the normal peak accumulation in the reach above Fort Peck, and at 81 percent of the normal peak accumulation in the reach between Fort Peck and Garrison

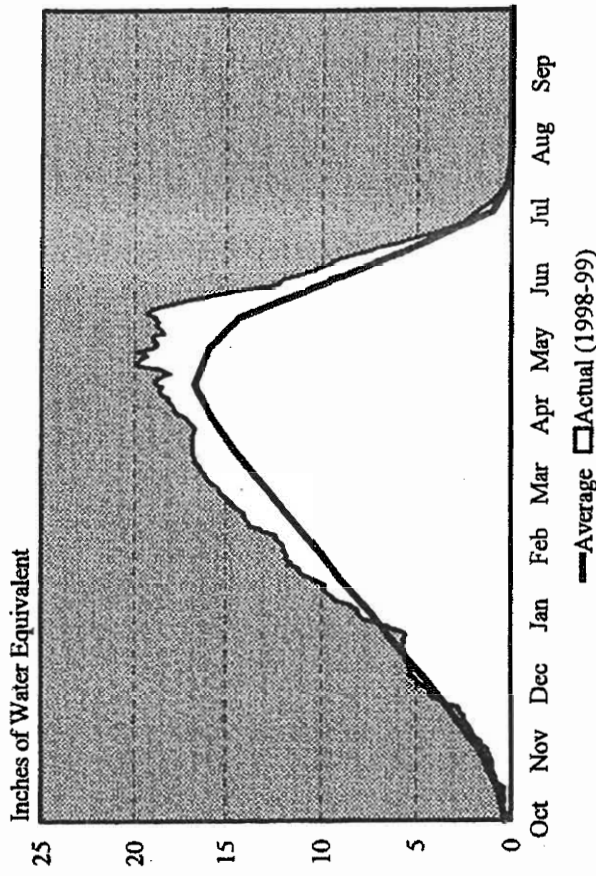
# Mountain Snowpack Water Content

## Missouri River Basin, Winter 1998 - 1999

*Total Above Fort Peck*



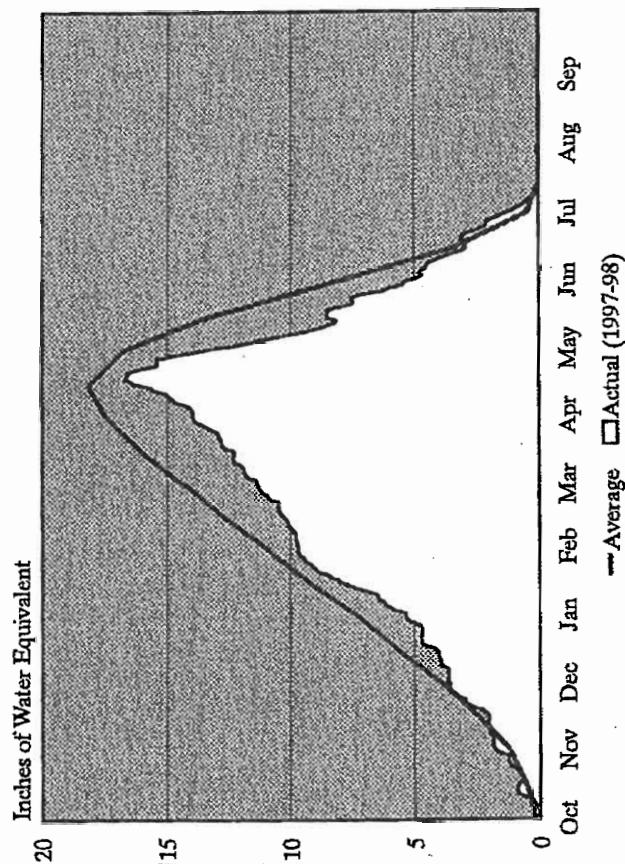
*Total Fort Peck to Garrison*



Snowpack peaked on April 15, 1999 at 107 percent of the normal peak in the reach above Fort Peck, and on May 1, 1999 at 115 percent of the normal peak in the reach between Fort Peck and Garrison

# Mountain Snowpack Water Content Missouri River Basin, Winter 1997 - 1998

*Total Above Fort Peck*



*Total Fort Peck to Garrison*

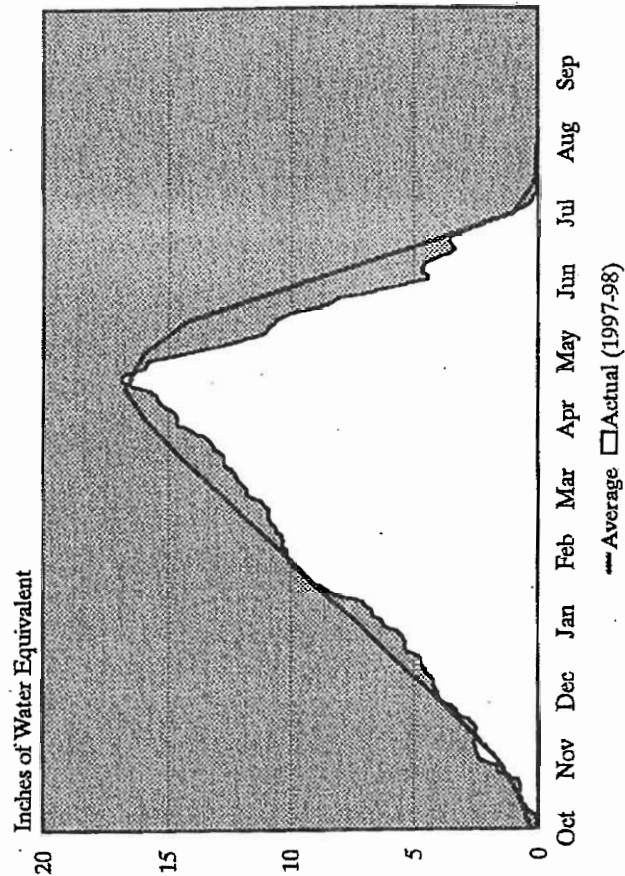


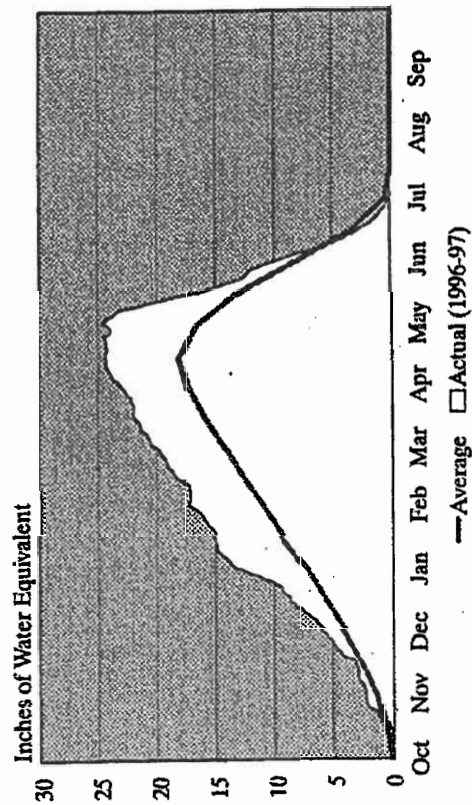
Figure 5  
11

*Snowpack peaked on April 18, 1998 at 92% of the normal peak accumulation in the reach above Fort Peck, and 101% of the normal peak in the reach between Fort Peck and Garrison.*



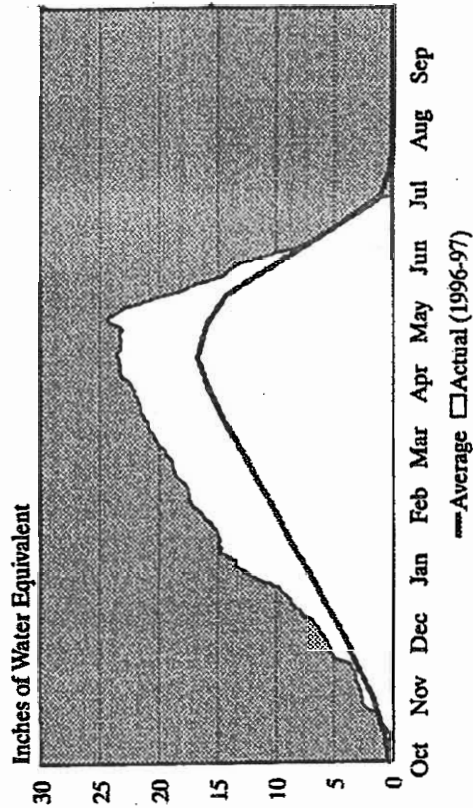
# Mountain Snowpack Water Content Missouri River Basin, Winter 1996-97

*Total Above Fort Peck*



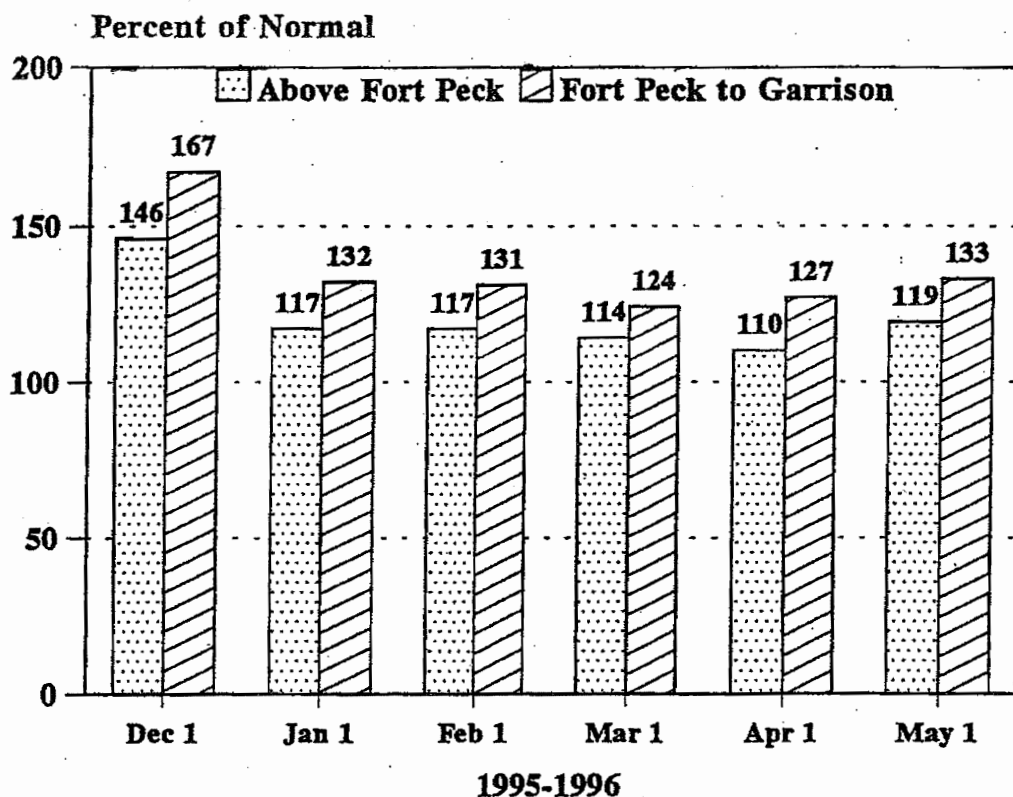
**Snowpack peaked on May 3 at 135%  
of the normal peak accumulation**

*Total Fort Peck to Garrison*



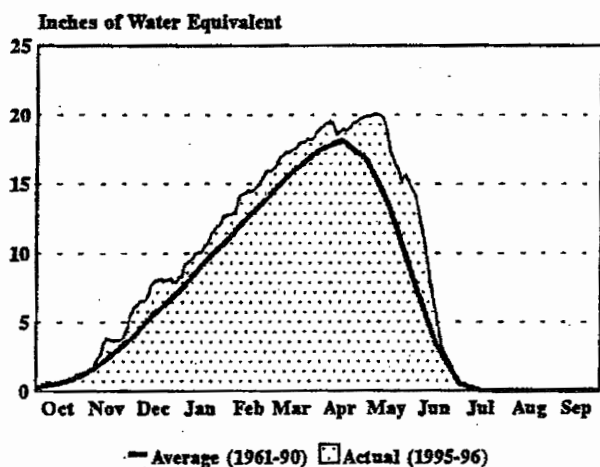
**Snowpack peaked on May 3 at 139%  
of the normal peak accumulation**

# Mountain Snowpack Water Content Upper Missouri Basin, Winter 1995-1996

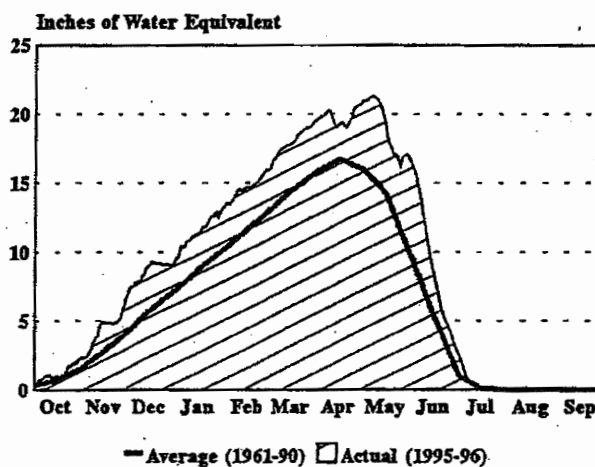


Total above Fort Peck

Total Fort Peck to Garrison



Snowpack peaked on May 5, 1996 at 111% of the normal peak accumulation



Snowpack peaked on May 6, 1996 at 128% of the normal peak accumulation

Figure 8

**NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 11:26 AM  
**To:** Thimsen, Anne  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02  
**Subject:** RE: Follow up to Pierre/Ft. Pierre buyout conversation (UNCLASSIFIED)

[REDACTED] - following up from our conversation yesterday. You said a constituent said something about us putting ourselves on flood alert on 1 March. Since last year we have operated according to the Master Manual and other operating procedures evacuating the exclusive flood control pools in the reservoirs so that we were ready for this flood season. As far as actions on the ground, we have been engaged with helping on the Big Sioux and were in flood fight mode due to the snowpack in that basin since about February. I'm not sure of the context of the statement that "the Corps put themselves on flood alert on 1 March"??? But the above states some of the actions we have been doing; but we don't refer to it in context of "flood alert." Let me know if this helps address your question.

-----Original Message-----

**From:** Thimsen, Anne [<mailto:Anne.Thimsen@mail.house.gov>]  
**Sent:** Wednesday, June 15, 2011 3:41 PM  
**To:** [REDACTED] NWO  
**Cc:** [REDACTED] NWO  
**Subject:** RE: Follow up to Pierre/Ft. Pierre buyout conversation (UNCLASSIFIED)

Thank you for the prompt response!

Quick clarification. The PL I was referencing was PL 95-625, not 265. Thanks!

-----Original Message-----

**From:** [REDACTED] NWO [[mailto:\[REDACTED\]@usace.army.mil](mailto:[REDACTED]@usace.army.mil)]  
**Sent:** Wednesday, June 15, 2011 4:34 PM  
**To:** Thimsen, Anne  
**Cc:** [REDACTED] NWO  
**Subject:** FW: Follow up to Pierre/Ft. Pierre buyout conversation (UNCLASSIFIED)

Anne - here are the attachments.

[REDACTED] - note that Anne's email is simply @mail.house.gov. She did not receive the below email.

Also, she said she had asked about applicability of PL 95-265 regarding stabilization of shorelines. Would you please look at that one as well and get back to her? Thanks for the help.

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 09, 2011 4:47 PM  
**To:** Anne Thimsen ([anne.thimsen@gmail.house.gov](mailto:anne.thimsen@gmail.house.gov))  
**Cc:** [REDACTED] NWO; [REDACTED] NWO  
**Subject:** Follow up to Pierre/Ft. Pierre buyout conversation (UNCLASSIFIED)

Classification: UNCLASSIFIED


Caveats: NONE

Anne:

Attached are two PDF files of the pertinent legislation for the Pierre/Ft. Pierre floodplain buyout project. As we discussed the project was authorized and appropriated at \$35M and the full \$35M has been expended in implementing buyouts, relocations, and flood proofing on a voluntary basis in both cities. The authority has not been deauthorized, so it remains a viable authority, but the authorized limit would need to be raised and then subsequent appropriations would be necessary in order for the Corps to conduct further work on that project.

Please let me know if you have any further questions.

Thank you,

  
Chief, Plan Formulation and Project Management Section Planning Branch Corps of Engineers,  
Omaha District

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 11:05 AM  
**To:** [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] NWD02; [REDACTED] LRH;  
[REDACTED] LRH; [REDACTED] HQ02; [REDACTED] HQ02; CE-UOC  
HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED]  
HQ02; [REDACTED] HQ02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED]  
W HQ02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Well said. I strongly agree with you what you said.

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Thursday, June 16, 2011 8:07 AM  
**To:** [REDACTED] HQ02; [REDACTED] NWD02; [REDACTED] LRH; [REDACTED] LRH;  
[REDACTED] HQ02; [REDACTED] HQ02; CE-UOC HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED]  
HQ02; [REDACTED] HQ02; [REDACTED] a NWD; [REDACTED] D; [REDACTED]  
HQ02; [REDACTED] HQ02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)  
**Importance:** High

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]-thanks to you, Laila and team! I will send this to the UOC team to ensure this is correctly reported. This underscores my contention that we need regular, direct communication up and down a vertical H&H/dam and levee safety chain.

It is my clear, strong observation-after providing technical support for the HQ UOC team and our senior leaders and Command staff over the span of many flooding emergencies(across NAD, LRD, MVD and SWD), that, while the EOC chain must be the central conduit for all information, it is not sufficient to exclusively handle technical information.

Thanks,  
Dave

-----Original Message-----

**From:** [REDACTED] HQ02

Sent: Thursday, June 16, 2011 10:34 AM

To: [REDACTED] NWD02; [REDACTED] HQ02

Cc: Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] NWD

Subject: Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Thanks [REDACTED] Glad to hear things are going relatively well. You NWD guys and gals are making us proud during this extreme event!

[REDACTED] please spread the word at the HQ UOC

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED] NWD02

To: [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02

Cc: Bertino, John J Jr NWO; Farhat, Jody S NWD02

Sent: Thu Jun 16 09:07:26 2011

Subject: RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

The information stated below is NOT accurate. There are no issues at Fort Peck at this time, and releases continue from the spillway at 65,000 cfs.

We have sent messages to the NWD and NWO Readiness channels to make sure reports are corrected. Travis and Eric, Please let the HQ Senior Leaders know that there are no problems at the Fort Peck spillway.

Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

From: [REDACTED] NWD

Sent: Thursday, June 16, 2011 8:41 AM

To: Farhat, Jody S NWD02; [REDACTED] NWD02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 7:24 PM

To: [REDACTED] NWD; [REDACTED] NWD02

Cc: [REDACTED] HQ02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 11:08 AM

To: [REDACTED] HQ02

Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02

To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02

Sent: Wed Jun 15 08:56:05 2011

Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

v/r [REDACTED]

-----Original Message-----

From: [REDACTED] MAJ HQ02

Sent: Wednesday, June 15, 2011 9:50 AM

To: [REDACTED] HQDA; [REDACTED]

Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] COL HQ02

Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

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v/r Darren

[REDACTED]  
Assistant Director, Civil Works  
3K94  
W: [REDACTED]  
M: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

**From:** Schenk, Kathryn M NWO  
**Sent:** Thursday, June 16, 2011 11:02 AM  
**To:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02  
**Subject:** Re: Oahe and Bend releases (UNCLASSIFIED)

I'm good. John Bertino went with Col Ruch to Sioux City.

-----

Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** Bertino, John J Jr NWO; Schenk, Kathryn M NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; Farhat, Jody S NWD02  
**Sent:** Thu Jun 16 07:48:27 2011  
**Subject:** Oahe and Bend releases (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

John, Katie, and all - Is there a time this morning you would be available to discuss releases from Oahe and Bend? We need to have a plan on what the potential triggers would be that would cause us to increase to 155 and how that might be accomplished.

Jody

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWK  
**Sent:** Thursday, June 16, 2011 11:00 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** Request for information

Jody,

I'm working in the JIC and received a call this morning from SFC Daniel Taylor at the Joint Force Headquarters - J2. He is requesting some form of written guidance for the anticipated duration of the high flows in order to submit a justification to higher headquarters for the use of military assets. Do we already have that somewhere in writing?

His contact info is [REDACTED] or [REDACTED][@us.army.mil](mailto:[REDACTED]@us.army.mil)

Thanks,

[REDACTED]  
MRERP Project Management Specialist  
Environmental Resource Section  
Planning Branch  
Kansas City District  
US Army Corps of Engineers  
[REDACTED]

**NWO**

**From:** [REDACTED] a NWD  
**Sent:** Thursday, June 16, 2011 10:55 AM  
**To:** Tipton, Robert A Col NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Ruch, Robert J COL NWO  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)  
**Attachments:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Please see the attached. HQ person acknowledges that it was their mistake and they corrected it by informing the HQ Senior leadership with the correct info.

[REDACTED] E.  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

**From:** Tipton, Robert A Col NWD  
**Sent:** Thursday, June 16, 2011 8:49 AM  
**To:** [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Ruch, Robert J COL NWO  
**Subject:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Surya - we still have not found where this came from. COL Ruch has no knowledge.

Please ensure the folks in your functional chain are aware this is not the case.

I will follow up with the MAJ at the bottom of the email to both clarify this is not the case and to inquire where this report came from.

RT

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWD  
**To:** [REDACTED] NWD; [REDACTED] NWD; Tipton, Robert A Col NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Bertino, John J Jr NWO  
**Sent:** Thu Jun 16 07:16:13 2011  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sirs,

It was mistakenly stated and communicated to HQ Senior Leadership by HQ EOC that Ft Peck spillway was closed and releases were being made through outletworks. It is completely a false statement and not accurate. There are no issues at Ft peck spillway.

[REDACTED]  
[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] NWD02  
Sent: Thursday, June 16, 2011 7:07 AM  
To: [REDACTED] a NWD; [REDACTED] HQ02; [REDACTED] HQ02  
Cc: Bertino, John J Jr NWO; Farhat, Jody S NWD02  
Subject: RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The information stated below is NOT accurate. There are no issues at Fort Peck at this time, and releases continue from the spillway at 65,000 cfs.

We have sent messages to the NWD and NWO Readiness channels to make sure reports are corrected. Travis and Eric, Please let the HQ Senior Leaders know that there are no problems at the Fort Peck spillway.

Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

From: [REDACTED] NWD  
Sent: Thursday, June 16, 2011 8:41 AM  
To: Farhat, Jody S NWD02; [REDACTED] NWD02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 7:24 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: [REDACTED] HQ02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02  
To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
Sent: Wed Jun 15 08:56:05 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

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v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 9:50 AM  
To: [REDACTED] HQDA; Tickner, Thomas  
Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED], [REDACTED] HQ02; [REDACTED] HQ02  
Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

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v/r Darren

[REDACTED]  
 Assistant Director, Civil Works  
 3K94  
 W: [REDACTED]  
 M: ([REDACTED])

Classification: UNCLASSIFIED  
 Caveats: NONE

Classification: UNCLASSIFIED  
 Caveats: NONE

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 Caveats: NONE

Classification: UNCLASSIFIED  
 Caveats: NONE

Classification: UNCLASSIFIED  
 Caveats: NONE

**NWO**

**From:** [REDACTED] HQ02  
**Sent:** Thursday, June 16, 2011 10:48 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; CE-UOC HQ02  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED]  
[REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Subject:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Sir- This was my error in reporting and I corrected with senior CW leadership this morning.

V/r [REDACTED]

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWD  
**To:** [REDACTED] HQ02; [REDACTED] HQ02; CE-UOC HQ02  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] NWD02;  
[REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Sent:** Thu Jun 16 10:08:58 2011  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Please provide us the "NWD daily report" you mention below in your second message and any details from the G3 discussion. We take issue with this report and we would like to track down the source to correct it.

We have searched all the reports regarding the upper Missouri River Basin and cannot find a report of closing a spillway. The closest report states:

" Ft. Peck Dam, MT - 24-hour surveillance continues on the dam and the spillway. Work to install a temporary overhead line to restore primary power to the spillway remains delayed due to parts needed for the power line. Backup generators are being used to make gate changes in the interim. A structural engineer assessment indicated that the continued scour along the length of the wing wall is as important as the depth of the scour. He recommends placing appropriately sized riprap along the wing wall to reducing the scour depth along the face of the wall. Additional analysis is recommended to identify critical scour depth and ensure that the structure is analyzed appropriately (structural, geotechnical, & hydraulic). They are continuing to monitor this area closely. It is further recommended that we try to investigate the extents of the scour hole (width and depth). No other Significant Dam Safety Issues."

As Ms Farhat mentions below, work is being done at the Fort Randall spillway.

Please advised senior leadership of the corrected information.

Thanks for any help and information

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Thursday, June 16, 2011 6:53 AM

To: [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD

Cc: [REDACTED] NWO; Bertino, John J Jr NWO

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

All,

The information below regarding Fort Peck is not accurate. There are no issues with the Fort Peck spillway and the outlet tunnels are not being used. Work is being done at the Fort Randall spillway. Omaha District can provide the details.

VR,  
Jody

-----Original Message-----

From: [REDACTED] NWD

Sent: Thursday, June 16, 2011 8:41 AM

To: Farhat, Jody S NWD02; [REDACTED] NWD02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 7:24 PM

To: [REDACTED] NWD; [REDACTED] NWD02

Cc: [REDACTED] HQ02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----



From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02  
To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
Sent: Wed Jun 15 08:56:05 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested.

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v/r [REDACTED]

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From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 9:50 AM  
To: [REDACTED] HQDA; Tickner, Thomas  
Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] HQ02  
Subject: Spring Flooding Update 15JUN -- as requested.

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v/r Darren

[REDACTED]  
Assistant Director, Civil Works  
3K94  
W: [REDACTED]  
M: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** Tipton, Robert A Col NWD  
**Sent:** Thursday, June 16, 2011 10:49 AM  
**To:** [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Ruch, Robert J COL NWO  
**Subject:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

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RT

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Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWD  
**To:** [REDACTED] NWD; [REDACTED] NWD; Tipton, Robert A Col NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Bertino, John J Jr NWO  
**Sent:** Thu Jun 16 07:16:13 2011  
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Classification: UNCLASSIFIED  
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[REDACTED]  
[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
surya.bhamidipaty@usace.army.mil

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 7:07 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
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Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

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Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 7:24 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: Halpin, Eric C HQ02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any additional info to share on Fort Peck?

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Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

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v/r [REDACTED]

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From: [REDACTED] HQ02  
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Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED], [REDACTED] HQ02; [REDACTED] HQ02  
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v/r [REDACTED]

[REDACTED]  
Assistant Director, Civil Works  
3K94

W: [REDACTED]  
M: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

NWO

From: [REDACTED] HQ02  
Sent: Thursday, June 16, 2011 10:48 AM  
To: [REDACTED] NWD; [REDACTED] HQ02; CE-UOC HQ02  
Cc: [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED]  
[REDACTED] NWD02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
Subject: Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

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V/r [REDACTED]

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: [REDACTED] NWD  
To: [REDACTED] HQ02; [REDACTED] HQ02; CE-UOC HQ02  
Cc: [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] NWD02;  
[REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
Sent: Thu Jun 16 10:08:58 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] / [REDACTED]:

Please provide us the "NWD daily report" you mention below in your second message and any details from the G3 discussion. We take issue with this report and we would like to track down the source to correct it.

We have searched all the reports regarding the upper Missouri River Basin and cannot find a report of closing a spillway. The closest report states:

" Ft. Peck Dam, MT - 24-hour surveillance continues on the dam and the spillway. Work to install a temporary overhead line to restore primary power to the spillway remains delayed due to parts needed for the power line. Backup generators are being used to make gate changes in the interim. A structural engineer assessment indicated that the continued scour along the length of the wing wall is as important as the depth of the scour. He recommends placing appropriately sized riprap along the wing wall to reducing the scour depth along the face of the wall. Additional analysis is recommended to identify critical scour depth and ensure that the structure is analyzed appropriately (structural, geotechnical, & hydraulic). They are continuing to monitor this area closely. It is further recommended that we try to investigate the extents of the scour hole (width and depth). No other Significant Dam Safety Issues."

As Ms Farhat mentions below, work is being done at the Fort Randall spillway.

Please advised senior leadership of the corrected information.

Thanks for any help and information

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Thursday, June 16, 2011 6:53 AM

To: [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD

Cc: [REDACTED] NWO; Bertino, John J Jr NWO

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

All,

The information below regarding Fort Peck is not accurate. There are no issues with the Fort Peck spillway and the outlet tunnels are not being used. Work is being done at the Fort Randall spillway. Omaha District can provide the details.

VR,

Jody

-----Original Message-----

From: [REDACTED] NWD

Sent: Thursday, June 16, 2011 8:41 AM

To: Farhat, Jody S NWD02; [REDACTED] NWD02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 7:24 PM

To: [REDACTED] NWD; [REDACTED] NWD02

Cc: [REDACTED] HQ02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----



From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02  
To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
Sent: Wed Jun 15 08:56:05 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 9:50 AM  
To: [REDACTED] HQDA; Tickner, Thomas  
Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED]  
[REDACTED] HQ02; [REDACTED] HQ02  
Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

- In MVD, Bonne Carre 20-bays closed in the past 24-hrs. 230/350 bays are currently open with flow of 102kcfs. NSTR.

- In MVD, Morganza has 1/125 gates open with flow of 6.1kcfs. NSTR.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

- In NWD, Outflows reported: Oahe- 150 kcfs (49% FCS utilized); Big Bend - 146kcfs (0% FCS); Fort Randall 143kcfs (0% FCS); Gavins Point 150kcfs (0% FCS)

- In Hamburg, flood waters are expected to reach elevation of 916 this morning at the recently constructed levees. Construction continues with placement of HESCO Bastions to elevation of 919. NWD expects HESCO placement to be complete this morning. There are no reported execution/construction issues regarding flood protection vic Hamburg.

v/r [REDACTED]

[REDACTED]  
Assistant Director, Civil Works  
3K94

W: [REDACTED]  
M: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 10:40 AM  
**To:** [REDACTED] NWO; DLL-CENWO-OD-GA; [REDACTED] NWO; [REDACTED]  
NWD02; [REDACTED] HQ02; [REDACTED] NWO; Farhat, Jody S NWD02; [REDACTED]  
NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] @ POD;  
[REDACTED] NWO; Schenk, Kathryn M NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO  
**Subject:** Today's Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-16 Garrison Flood Fight Daily Staff Notes.docx; Main Stem Regulation Forecast - Three-Week.htm

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

Attached are today's notes, along with the current 3-week forecast...

[REDACTED]  
MActing Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED  
Caveats: FOUO

Classification: UNCLASSIFIED  
Caveats: FOUO

**Garrison Flood Fight  
Daily Staff Notes  
Thursday, June 16, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.69. Yesterday's elevation: 1853.65
  - Current Tail water Elevation 1683.61. Yesterday's elevation 1683.35
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1685.0
  - Estimated Inflows 180,000 cfs, Releases: 140,000 cfs
  - Release Schedule: Increase to 145,000 cfs today and 150,000 cfs tomorrow.
  - Spillway gates #'s 1, 27 & 28 are open one foot. Gate #'s 2-26 are open approximately 2 feet.
  - Current release distribution: Power Plant - 23,000 cfs, Regulating Tunnels - 65,000 cfs, Spillway - 57,500 cfs.
  - We are currently making shifts in our releases as we provide load control for WAPA. Scheduled load and water release changes are being made at 0800 and 2000 hours. Last evening several unscheduled gate changes were necessary to maintain the water release schedule.
- Fort Peck releases 65,000 cfs scheduled to remain at that level until June 19th before going back down to 60,000 cfs.
- Missouri River Elevations:
  - Bismarck gage: Currently 18.42 feet. Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: Currently 29.84 feet, forecasted remain at 29.9 into tomorrow, the very slowly recede. Previous record stage: 28.0 feet.
- Current Snowpack: Snow pack data not updated for today...
  - Ft Peck - crested at 136% of normal peak; currently 73% of the normal peak remains.
  - Garrison - crested at 141% of peak; currently 82% of the normal peak remains.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED]; cell: (408) 779-5484)
  - [REDACTED] is also on site to help assess hydraulic flows and concerns with changing release patterns. Cell: 408-779-5484
- Instrumentation (Team Leader [REDACTED], cell: (408) 779-5484)
  - Nothing new reported.

**Snake Creek Embankment/ Lake Audubon:**

- Surveillance:
  - No new issues, plan to assess the embankment later this week...
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

### **Williston Levee:**

- POC's [REDACTED], cell: ([REDACTED])
- Inspection teams found an additional 5 pin boils on 14 June.
- Some relief wells are now flowing up to 200 gpm.
- Mr. Keller informed me that a children's home was evacuated at the request of one City councilman. He also said that the hospital called to inquire about evacuations. Neither of these facilities is located within the inundation areas on our maps. We are not clear why the city is making these decisions?
- Governor, TAG, and [REDACTED] (USACE Liaison) met with City Officials 14 June. [REDACTED]'s summary of the meeting and City requests was sent to Omaha for response.
- Contractor hired to improve the toe road having difficulty performing. CD sending someone to assist.

### **Natural Resources:**

- POC's [REDACTED], cell: ([REDACTED])
- Law enforcement contract with Mercer County is now in place. Still working to get a contractor for traffic control and parking on weekends.
- Mike Key and Brent Cossette, from the District Office, are scheduled to arrive at Garrison this Friday to assist and provide our personnel some reprieve. The assistance is much appreciated!

### **Outside Maintenance:**

- Will continue regrading and adding material to the West Spillway overlook.
- Installed lathe along the downstream campground so we can monitor progression on our bank erosion.
- Will coordinate adding rock to the lower end of the tailrace riprap on both East and West banks, as the current and fluctuating tailrace elevations are back cutting the riprap. Current conditions will not allow access on the East bank as it is too muddy. Work will be pursued as soon as conditions permit.
- Will add material to improve access up the East and West spillway roads.
- Temporary water line: If a leak is noted, notify your supervisor, Chuck Phelps, or I ASAP. Also notify City of Riverdale, "Clay" at (701) 471-6433 or Charles Sorensen ext. 232, or home ([REDACTED]). Shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.

### **Power Plant:**

- Going back to four units generating today and backing off again this evening to meet WAPA needs. Changes being made at 8:00 am and 8:00 pm. Changes will be made between the power plant and regulating tunnels. A 15,000 cfs swing each time.
- Drawings for monitoring and/or automation of the regulating tunnel gates have been sent to Omaha for review/concurrence and to ensure compliance with EC

1110-2-6071, which restricts remote operations for water control features that pose life safety risk. Concerns remain that automation will further exacerbate the desire to operate these gates frequently as part of power control for WAPA. I still want an Engineering opinion regarding whether these gates are designed for such use?

- Camera at the Spillway is now functional. Will need to monitor fuel on the generator used to provide power for the camera.
- Dakota Fence was onsite yesterday to assess issues with the gate operator on our main security gate.

**Weather/Safety:**

Sunshine and clouds mixed. High 74F. Winds SE at 10 to 15 mph.	Partly cloudy with a slight chance of thunderstorms. Low 59F. Winds ESE at 10 to 15 mph. Chance of rain 30%.	Showers and thundershowers likely. High 66F. Winds SSE at 10 to 20 mph. Chance of rain 60%.
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- [REDACTED] and [REDACTED] have volunteered to work on evacuation plans. I still need to coordinate with them on development of these plans.

**Needed Resources:**

- Pursuing printing of overview maps to be utilized for dam safety surveillance. Printing will be done in Omaha and Fed-exed to the project.
- NR's placed an order for new life jackets.
- Currently working with ACE-IT and looking into upgrading our radios so that we can utilize them effectively for local communication. Cell phone coverage is spotty in several locations. Signal booster has been ordered to improve cell phone reception.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED] (cell: [REDACTED]) / Home: [REDACTED]).

**OPM Notes:**

- Todd left this morning for a much needed and much deserved vacation. Todd will return to ND on Sunday. [REDACTED] will be Acting OPM. His cell number is [REDACTED].
- Everyone needs to be watching for large trees/debris that is headed for our spillway. If large debris is noted, Outside Maintenance should be notified ASAP so they can launch a boat and remove the debris. Also need the power plant to walk the spillway gates daily to check for debris caught under the gates. If a large tree is noted, Dale should be notified to determine corrective actions.
- Surveyors will be out surveying the crest road for the Highway 200 replacement project, currently scheduled for next year. We will be meeting with the design engineers on June 20<sup>th</sup> to discuss proposed changes to the approaches at each end of the crest road. Dam safety engineers will participate in the meeting.

- Many folks are working long hours and/or late shifts. Please watch out for each other and ensure that safety procedures are followed!

This regulation forecast was made using computed reservoir inflows based on 5-days of forecast precipitation and mountain snowmelt runoff. The regulation forecast is subject to change daily as actual events occur.

\* Indicates release changes from previous forecast

REGULATION FORECAST										06/15/11												
FTPK					GARR					OAHE					BEND				FTRA			
		24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	
15	W	2252.3	75.0	65.0	5.14	1853.8	179.9	140.0	9.26	1618.6	162.3	150.0	13.89	1419.7	150.0	150.0	8.50	1363.7	153.1	143.0	9	
16	T	2252.3	68.0	65.0	5.14	1853.9	181.5	145.0	9.27	1618.7	165.0	150.0	13.90	1419.7	150.0	150.0	8.46	1363.9	152.9	143.0*	9	
17	F	2252.3	62.0	65.0	5.14	1854.1	178.2	150.0	9.28	1618.8	173.6	150.0	13.91	1419.7	150.0	150.0	8.45	1364.0	152.7	148.0	9	
18	T	2252.2	59.0	65.0	5.14	1854.2	171.2	150.0	9.28	1618.9	172.4	150.0	13.91	1419.7	150.0	150.0	8.43	1364.1	152.5	148.0	9	
19	T	2252.2	56.0	65.0	5.13	1854.3	167.1	150.0	9.29	1619.0	169.8	150.0	13.92	1419.7	150.0	150.0	8.42	1364.2	152.4	148.0	9	
20	M	2252.1	55.0	60.0	5.13	1854.4	165.0	150.0	9.29	1619.1	165.0	150.0	13.93	1419.7	150.0	150.0	8.41	1364.3	152.4	148.0	9	
21	T	2252.1	53.0	60.0	5.13	1854.4	163.8	150.0	9.30	1619.1	160.0	150.0	13.93	1419.7	150.0	150.0	8.39	1364.4	152.4	148.0	9	
22	W	2252.0	52.0	60.0	5.13	1854.5	160.6	150.0	9.30	1619.2	157.5	150.0	13.93	1419.7	150.0	150.0	8.38	1364.5	152.4	148.0	9	
23	T	2251.9	50.0	60.0	5.13	1854.5	153.8	150.0	9.30	1619.2	157.5	150.0	13.94	1419.7	150.0	150.0	8.36	1364.6	152.4	148.0	9	
24	F	2251.8	52.0	60.0	5.13	1854.5	150.6	150.0	9.30	1619.3	157.5	150.0	13.94	1419.7	150.0	150.0	8.35	1364.7	152.4	148.0	9	
25	T	2251.8	56.0	60.0	5.13	1854.5	146.0	150.0	9.30	1619.3	157.5	150.0	13.94	1419.7	150.0	150.0	8.34	1364.8	152.4	148.0	9	
26	T	2251.8	60.0	60.0	5.13	1854.5	151.0	150.0	9.30	1619.3	157.5	150.0	13.94	1419.7	150.0	150.0	8.32	1364.8	152.2	148.0	9	
27	M	2251.8	65.0	60.0	5.13	1854.5	158.0	150.0	9.30	1619.4	157.5	150.0	13.95	1419.7	150.0	150.0	8.31	1364.9	152.0	148.0	9	
28	T	2251.9	70.0	60.0	5.13	1854.6	165.0	150.0	9.30	1619.4	157.5	150.0	13.95	1419.7	150.0	150.0	8.30	1365.0	151.7	148.0	9	
29	W	2252.0	74.0	60.0	5.13	1854.7	171.0	150.0	9.31	1619.4	156.5	150.0	13.95	1419.7	150.0	150.0	8.28	1365.1	151.5	148.0	9	
30	T	2252.1	74.0	60.0	5.13	1854.8	177.0	150.0	9.32	1619.4	155.0	150.0	13.95	1419.7	150.0	150.0	8.27	1365.2	151.4	148.0	9	
1	F	2252.2	74.0	60.0	5.14	1854.9	175.0	150.0	9.32	1619.5	154.0	150.0	13.95	1419.7	150.0	150.0	8.26	1365.2	151.2	148.0	9	
2	T	2252.3	70.0	60.0	5.14	1855.1	173.0	150.0	9.33	1619.5	153.0	150.0	13.95	1419.7	150.0	150.0	8.25	1365.3	151.0	148.0	9	
3	T	2252.3	65.0	60.0	5.14	1855.2	172.0	150.0	9.33	1619.5	152.0	150.0	13.95	1419.7	150.0	150.0	8.25	1365.3	150.9	148.0	9	
4	M	2252.3	60.0	60.0	5.14	1855.3	171.0	150.0	9.34	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.24	1365.4	150.7	148.0	9	
5	T	2252.3	59.0	60.0	5.14	1855.4	170.0	150.0	9.34	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.23	1365.4	150.5	148.0	9	
6	W	2252.3	54.0	60.0	5.14	1855.4	169.0	150.0	9.35	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.22	1365.5	150.4	148.0	9	
7	T	2252.2	50.0	60.0	5.13	1855.5	166.0	150.0	9.35	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.21	1365.6	150.2	148.0	9	
8	F	2252.1	49.0	60.0	5.13	1855.6	164.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.21	1365.6	150.2	148.0	9	
9	T	2252.0	49.0	60.0	5.13	1855.6	162.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.20	1365.6	150.2	148.0	9	
10	T	2251.9	48.0	60.0	5.13	1855.7	160.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.19	1365.7	150.2	148.0	9	
11	M	2251.8	47.0	60.0	5.12	1855.7	158.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.19	1365.7	150.2	148.0	9	
12	T	2251.6	46.0	60.0	5.12	1855.7	156.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.18	1365.8	150.2	148.0	9	
13	W	2251.5	45.0	60.0	5.12	1855.8	154.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.17	1365.8	150.2	148.0	9	
14	T	2251.4	44.0	60.0	5.12	1855.8	152.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.16	1365.9	150.2	148.0	9	
15	F	2251.2	38.0	60.0	5.11	1855.7	150.0	150.0	9.36	1619.5	152.0	150.0	13.96	1419.7	150.0	150.0	8.16	1365.9	150.2	148.0	9	

#### Project:

24EL Midnight Elevation (feet above mean sea level)  
 24ID Daily Average Inflow (kcfs)  
 24OD Daily Average Release (kcfs)  
 24GE Daily Power Generation (MWh)

#### System:

GE Daily Power Generation (MWh)  
 SG Midnight Storage (AF)  
 DSG Daily Storage Change (AF)

#### Units:

kcfs thousand cubic feet per second  
 MWh megawatt hour  
 AF acre-feet

Pagemaster: Water Management; CENWD-PDR;

Internet E-Mail Address: [Missouri.Water.Management@nwd02.usace.army.mil](mailto:Missouri.Water.Management@nwd02.usace.army.mil)



**NWO**

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 10:37 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

[REDACTED] called. He said they will correct the report. We went through the facts and he had good information, the report was wrong.

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 8:09 AM  
**To:** [REDACTED] HQ02; [REDACTED] HQ02; CE-UOC HQ02  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] / [REDACTED]:  
Please provide us the "NWD daily report" you mention below in your second message and any details from the G3 discussion. We take issue with this report and we would like to track down the source to correct it.

We have searched all the reports regarding the upper Missouri River Basin and cannot find a report of closing a spillway. The closest report states:

" Ft. Peck Dam, MT - 24-hour surveillance continues on the dam and the spillway. Work to install a temporary overhead line to restore primary power to the spillway remains delayed due to parts needed for the power line. Backup generators are being used to make gate changes in the interim. A structural engineer assessment indicated that the continued scour along the length of the wing wall is as important as the depth of the scour. He recommends placing appropriately sized riprap along the wing wall to reducing the scour depth along the face of the wall. Additional analysis is recommended to identify critical scour depth and ensure that the structure is analyzed appropriately (structural, geotechnical, & hydraulic). They are continuing to monitor this area closely. It is further recommended that we try to investigate the extents of the scour hole (width and depth). No other Significant Dam Safety Issues."

As Ms Farhat mentions below, work is being done at the Fort Randall spillway.

Please advised senior leadership of the corrected information.

Thanks for any help and information

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Thursday, June 16, 2011 6:53 AM

To: [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD

Cc: [REDACTED] NWO; Bertino, John J Jr NWO

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

All,

The information below regarding Fort Peck is not accurate. There are no issues with the Fort Peck spillway and the outlet tunnels are not being used. Work is being done at the Fort Randall spillway. Omaha District can provide the details.

VR,  
Jody

-----Original Message-----

From: [REDACTED] NWD

Sent: Thursday, June 16, 2011 8:41 AM

To: Farhat, Jody S NWD02; [REDACTED] NWD02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 7:24 PM

To: [REDACTED] NWD; [REDACTED] NWD02

Cc: [REDACTED] HQ02

Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02  
To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
Sent: Wed Jun 15 08:56:05 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 9:50 AM  
To: [REDACTED] HQDA; Tickner, Thomas  
Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] COL HQ02  
Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

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v/r [REDACTED]

[REDACTED]  
Assistant Director, Civil Works  
3K94

W: ([REDACTED])  
M: ([REDACTED])

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** CE-UOC HQ02  
**Sent:** Thursday, June 16, 2011 10:35 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED]  
[REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02; CE-  
UOC HQ02; [REDACTED] LRH; [REDACTED] LRH; [REDACTED] SPN  
**Subject:** USACE/Current Operations Acknowledgement-- Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

ALCON,

Acknowledged.  
V/r,

[REDACTED]  
USACE Operations Center  
[REDACTED]

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 11:09 AM  
**To:** [REDACTED] HQ02; [REDACTED] HQ02; CE-UOC HQ02  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] NWD02;  
[REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] / [REDACTED]  
Please provide us the "NWD daily report" you mention below in your second message and any details from the G3 discussion. We take issue with this report and we would like to track down the source to correct it.

We have searched all the reports regarding the upper Missouri River Basin and cannot find a report of closing a spillway. The closest report states:

" Ft. Peck Dam, MT - 24-hour surveillance continues on the dam and the spillway. Work to install a temporary overhead line to restore primary power to the spillway remains delayed due to parts needed for the power line. Backup generators are being used to make gate changes in the interim. A structural engineer assessment indicated that the continued scour along the length of the wing wall is as important as the depth of the scour. He recommends placing appropriately sized riprap along the wing wall to reducing the scour depth along the face of the wall. Additional analysis is recommended to identify critical scour depth and ensure that the structure is analyzed appropriately (structural, geotechnical, & hydraulic). They are continuing to monitor this area closely. It is further recommended that we try to

investigate the extents of the scour hole (width and depth). No other Significant Dam Safety Issues."

As Ms Farhat mentions below, work is being done at the Fort Randall spillway.

Please advised senior leadership of the corrected information.

Thanks for any help and information

-----Original Message-----

From: [REDACTED] NWD02  
Sent: Thursday, June 16, 2011 6:53 AM  
To: [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD  
Cc: [REDACTED] NWO; Bertino, John J Jr NWO  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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Jody

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Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

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Sent: Wednesday, June 15, 2011 7:24 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: [REDACTED] HQ02  
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Classification: UNCLASSIFIED  
Caveats: NONE

Any additional info to share on Fort Peck?

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Subject: Fw: Spring Flooding Update 15JUN -- as requested.

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v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 9:50 AM  
To: [REDACTED] HQDA; Tickner, Thomas  
Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] HQ02  
Subject: Spring Flooding Update 15JUN -- as requested.

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v/r [REDACTED]

[REDACTED]

Assistant Director, Civil Works  
3K94

W: [REDACTED]

M: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED] NWO

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 10:28 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** PowerPoint - last 15 years - elevations and storages (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I created a new file from 01-Jan-1996 to 15-Jun-2011.

V:\Public\Flood\_2011> Elev and Storage Traces - last 15 years.pptx

[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE

[REDACTED] (fax)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

**From:** MRJIC  
**Sent:** Thursday, June 16, 2011 10:18 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD  
**Subject:** FW: Attention [REDACTED] (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** MRJIC  
**Sent:** Thursday, June 16, 2011 10:17 AM  
**To:** 'Tim.Flannery@state.sd.us'  
**Subject:** RE: Attention [REDACTED] (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Mr. Flannery: Ms. Jody Farhat, Chief of Missouri River Water Management, will be available at 4:00 p.m. on June 21st for a conference call with the SD Government Operations and Audit Committee. Please have parties call in to 402-996-3840.

[REDACTED]

-----Original Message-----

**From:** [Tim.Flannery@state.sd.us](mailto:Tim.Flannery@state.sd.us) [mailto:Tim.Flannery@state.sd.us]  
**Sent:** Tuesday, June 14, 2011 3:34 PM  
**To:** MRJIC  
**Subject:** Attention [REDACTED]

Per our conversation [REDACTED], I'm attaching the pdf request letter from the Chair of the Government Operations and Audit Committee of the South Dakota Legislature. The letter mentions the time that the Committee has reserved to have a discussion with the US Army Corps of Engineers (June 21, 2011 at approximately 4:00 p.m.). Please let me know if you need more information or have any questions. Thank you Christina for the Corps willingness to talk to the Committee.

<<GOA6-21-11ArmyCorpsOfEngineersLetterDoc6.pdf>>  
Tim Flannery, CPA CIDA  
Department of Legislative Audit

e-mail: [tim.flannery@state.sd.us](mailto:tim.flannery@state.sd.us)  
phone: (605) 773-6442  
fax: (605) 773-6454

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 10:09 AM  
**To:** [REDACTED] HQ02; [REDACTED] HQ02; CE-UOC HQ02  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED]  
[REDACTED] NWD02; [REDACTED] NWD; Tutka, Travis HQ02; Halpin, Eric C HQ02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] / [REDACTED]:

Please provide us the "NWD daily report" you mention below in your second message and any details from the G3 discussion. We take issue with this report and we would like to track down the source to correct it.

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As Ms Farhat mentions below, work is being done at the Fort Randall spillway.

Please advised senior leadership of the corrected information.

Thanks for any help and information

[REDACTED]

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 6:53 AM  
**To:** [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

All,

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Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 7:24 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: [REDACTED] HQ02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any additional info to share on Fort Peck?

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Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

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v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 9:50 AM

To: [REDACTED] HQDA; Tickner, Thomas

Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED]

[REDACTED] R HQ02; [REDACTED] HQ02

Subject: Spring Flooding Update 15JUN -- as requested.

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- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

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v/ [REDACTED]

[REDACTED]  
Assistant Director, Civil Works

3K94

W: [REDACTED]

M: [REDACTED]

**NWO**

**From:** [REDACTED] HQ02  
**Sent:** Thursday, June 16, 2011 10:07 AM  
**To:** [REDACTED] HQ02; [REDACTED] NWD02; [REDACTED] LRH; [REDACTED] LRH;  
[REDACTED] HQ02; [REDACTED] HQ02; CE-UOC HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED]  
HQ02; [REDACTED] HQ02; [REDACTED] a NWD; [REDACTED] NWD; [REDACTED]  
[REDACTED] HQ02; [REDACTED] HQ02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)  
**Importance:** High

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] thanks to you, [REDACTED] and team! I will send this to the UOC team to ensure this is correctly reported. This underscores my contention that we need regular, direct communication up and down a vertical H&H/dam and levee safety chain.

It is my clear, strong observation-after providing technical support for the HQ UOC team and our senior leaders and Command staff over the span of many flooding emergencies(across NAD, LRD, MVD and SWD), that, while the EOC chain must be the central conduit for all information, it is not sufficient to exclusively handle technical information.

Thanks,  
Dave

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Thursday, June 16, 2011 10:34 AM  
**To:** [REDACTED] NWD02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED]  
HQ02; [REDACTED] HQ02; [REDACTED] NWD  
**Subject:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Thanks [REDACTED]. Glad to hear things are going relatively well. You NWD guys and gals are making us proud during this extreme event!

[REDACTED], please spread the word at the HQ UOC

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWD02  
**To:** [REDACTED] a NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
**Sent:** Thu Jun 16 09:07:26 2011  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The information stated below is NOT accurate. There are no issues at Fort Peck at this time, and releases continue from the spillway at 65,000 cfs.

We have sent messages to the NWD and NWO Readiness channels to make sure reports are corrected. Travis and Eric, Please let the HQ Senior Leaders know that there are no problems at the Fort Peck spillway.

Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

From: [REDACTED] NWD  
Sent: Thursday, June 16, 2011 8:41 AM  
To: Farhat, Jody S NWD02; [REDACTED] NWD02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

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- In NWD, Outflows reported: Oahe- 150 kcfs (49% FCS utilized); Big Bend - 146kcfs (0% FCS); Fort Randall 143kcfs (0% FCS); Gavins Point 150kcfs (0% FCS)

- In Hamburg, flood waters are expected to reach elevation of 916 this morning at the recently constructed levees. Construction continues with placement of HESCO Bastions to elevation of 919. NWD expects HESCO placement to be complete this morning. There are no reported execution/construction issues regarding flood protection vic Hamburg.

[REDACTED]  
Assistant Director, Civil Works

3K94

W: [REDACTED]

M: ([REDACTED])



[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 9:58 AM  
**To:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Schenk, Kathryn M NWO  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02  
**Subject:** RE: Oahe and Bend releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Anytime

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 9:48 AM  
**To:** Bertino, John J Jr NWO; Schenk, Kathryn M NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; Farhat, Jody S NWD02  
**Subject:** Oahe and Bend releases (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

John, Katie, and all - Is there a time this morning you would be available to discuss releases from Oahe and Bend? We need to have a plan on what the potential triggers would be that would cause us to increase to 155 and how that might be accomplished.

Jody

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 9:48 AM  
**To:** Bertino, John J Jr NWO; Schenk, Kathryn M NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; Farhat, Jody S NWD02  
**Subject:** Oahe and Bend releases (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

John, Katie, and all - Is there a time this morning you would be available to discuss releases from Oahe and Bend? We need to have a plan on what the potential triggers would be that would cause us to increase to 155 and how that might be accomplished.

Jody

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** [REDACTED] HQ02  
**Sent:** Thursday, June 16, 2011 9:39 AM  
**To:** Bertino, John J Jr NWO [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] HQ02  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

John, from your DSO eyes - is the issue at Fort Randall Dam a major concern or just something you are monitoring along with some intervention measures?

-----Original Message-----

**From:** Bertino, John J Jr NWO  
**To:** [REDACTED]  
**To:** [REDACTED]  
**To:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)  
**Sent:** Jun 16, 2011 10:19 AM

Classification: UNCLASSIFIED  
Caveats: NONE

The issue described in the e-mail chain below was actually at Fort Randall Dam in South Dakota, not Fort Peck Dam. There are no dam safety issues related to the spillway at Fort Randall Dam.

Bertino

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 9:07 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The information stated below is NOT accurate. There are no issues at Fort Peck at this time, and releases continue from the spillway at 65,000 cfs.

We have sent messages to the NWD and NWO Readiness channels to make sure reports are corrected. Travis and Eric, Please let the HQ Senior Leaders know that there are no problems at the Fort Peck spillway.

Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 8:41 AM

To: Farhat, Jody S NWD02; [REDACTED] NWD02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original

-----Original Message Truncated-----

-----  
Message sent via my BlackBerry Wireless Device

**NWO**

---

**From:** [REDACTED] HQ02  
**Sent:** Thursday, June 16, 2011 9:34 AM  
**To:** [REDACTED] NWD02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] NWD  
**Subject:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Thanks [REDACTED] Glad to hear things are going relatively well. You NWD guys and gals are making us proud during this extreme event!

[REDACTED], please spread the word at the HQ UOC

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWD02  
**To:** [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
**Sent:** Thu Jun 16 09:07:26 2011  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The information stated below is NOT accurate. There are no issues at Fort Peck at this time, and releases continue from the spillway at 65,000 cfs.

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Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

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**Sent:** Thursday, June 16, 2011 8:41 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] E.  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 7:24 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: [REDACTED] HQ02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02  
To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
Sent: Wed Jun 15 08:56:05 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

[REDACTED]

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 9:50 AM  
To: [REDACTED] HQDA; Tickner, Thomas  
Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] HQ02  
Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over

the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

- In MVD, Bonne Carre 20-bays closed in the past 24-hrs. 230/350 bays are currently open with flow of 102kcfs. NSTR.

- In MVD, Morganza has 1/125 gates open with flow of 6.1kcfs. NSTR.

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[REDACTED]  
[REDACTED]  
Assistant Director, Civil Works

3K94

W: ([REDACTED])

M: ([REDACTED])

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** Tipton, Robert A Col NWD  
**Sent:** Thursday, June 16, 2011 9:34 AM  
**To:** [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED]  
NWD; Ruch, Robert J COL NWO  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO  
**Subject:** Re: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Not sure where this came from. I looked at our last three sitreps and we never even alluded to this.

Suspect it might have been discussed in the phone call with G2 and that perhaps someone heard something and reported on it.

I will wait until Witt and COL Ruch sees this before responding as they were on the phone call with G2.

RT

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** [REDACTED] NWD  
**To:** [REDACTED] NWD; [REDACTED] NWD; Tipton, Robert A Col NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Bertino, John J Jr NWO  
**Sent:** Thu Jun 16 07:16:13 2011  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sirs,

It was mistakenly stated and communicated to HQ Senior Leadership by HQ EOC that Ft Peck spillway was closed and releases were being made through outletworks. It is completely a false statement and not accurate. There are no issues at Ft peck spillway.

[REDACTED]  
[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 7:07 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)



Classification: UNCLASSIFIED

Caveats: NONE

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Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

From: [REDACTED] NWD  
Sent: Thursday, June 16, 2011 8:41 AM  
To: Farhat, Jody S NWD02; [REDACTED] NWD02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 7:24 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: [REDACTED] HQ02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02  
To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02

Sent: Wed Jun 15 08:56:05 2011

Subject: RE: Spring Flooding Update 15JUN -- as requested.

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v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 9:50 AM

To: [REDACTED] HQDA; Tickner, Thomas

Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] HQ02

Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

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v/r [REDACTED]

Assistant Director, Civil Works

3K94

W: [REDACTED]

M: ( [REDACTED] )

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 9:26 AM  
**To:** [REDACTED] NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02  
**Subject:** WM Update - 6-16-11 (UNCLASSIFIED)  
**Attachments:** NWD Missouri Basin Update - 061611.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Today's Update is attached.

[REDACTED]  
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers  
[REDACTED]  
[REDACTED]@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

# Missouri River Basin Stages

16 June 2011



	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
A	Bismarck	16	18.3	150 kcfs 20.6	June 19	
B	Pierre	13	18.9	150 kcfs 18.7	June 7	
C	Yankton	20	24.8	150 kcfs n/a	June 14	
D	Sioux City	30	33.0	170 kcfs 35	June 15	44.28 (1952)
E	Decatur	35	37.8	175 kcfs 40	June 15	43.5 (1943)
F	Blair	26	31.5	175 kcfs 32	June 15	33.5 (1952)
G	Omaha	29	33.2	175 kcfs 34	June 16	40.2 (1952)
H	Nebraska City	18	25.9	200 kcfs 27	June 16	27.19 (1993)
I	Brownville	33	40.2	205 kcfs 43	June 16	44.3 (1993)
J	Rulo	17	23.8	210 kcfs 25.5	June 17	26.63 (2010)
K	St. Joseph	17	22.6	215 kcfs 27	June 17	32.07 (1993)
L	Atchison	22	25.4	215 kcfs 30	June 17	31.63 (1993)
M	Leavenworth	20	21.4	215 kcfs 27	June 17	35.34 (1993)

# Missouri River Basin Stages

16 June 2011



	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
N	Kansas City	32	25.7	220 kcfs 30 350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	24.5	220 kcfs 28 350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	21.2	220 kcfs 25 350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	23.8	230 kcfs 27 370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	21.9	235 kcfs 26 370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	24.9	250 kcfs 32 410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	20.9	260 kcfs 27 420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	20.7	260 kcfs 27 430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	17.5	290 kcfs 24 450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	23.8	300 kcfs 30 470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	21.6	300 kcfs 27 470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	18.1	300 kcfs 23 470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	24.5	300 kcfs 28 470 kcfs 37	June 20	40.04 (1993)

**NWO**

**From:** Bertino, John J Jr NWO  
**Sent:** Thursday, June 16, 2011 9:20 AM  
**To:** [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The issue described in the e-mail chain below was actually at Fort Randall Dam in South Dakota, not Fort Peck Dam. There are no dam safety issues related to the spillway at Fort Randall Dam.

Bertino

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 9:07 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
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Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 8:41 AM  
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**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]

[REDACTED]@usace.army.mil

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Sent: Wednesday, June 15, 2011 7:24 PM  
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[REDACTED]

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From: [REDACTED] HQ02  
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Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] HQ02  
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[REDACTED]

[REDACTED]

Assistant Director, Civil Works

3K94

W: [REDACTED] 761-8107

M: [REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 9:16 AM  
**To:** [REDACTED] NWD; [REDACTED] NWD; Tipton, Robert A Col NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Bertino, John J Jr NWO; Bertino, John J Jr NWO  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Sirs,

It was mistakenly stated and communicated to HQ Senior Leadership by HQ EOC that Ft Peck spillway was closed and releases were being made through outletworks. It is completely a false statement and not accurate. There are no issues at Ft peck spillway.

[REDACTED]  
[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 7:07 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

The information stated below is NOT accurate. There are no issues at Fort Peck at this time, and releases continue from the spillway at 65,000 cfs.

We have sent messages to the NWD and NWO Readiness channels to make sure reports are corrected. Travis and Eric, Please let the HQ Senior Leaders know that there are no problems at the Fort Peck spillway.

Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 8:41 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[REDACTED]@usace.army.mil

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 7:24 PM  
To: [REDACTED] NWD; [REDACTED] NWD02  
Cc: [REDACTED] HQ02  
Subject: FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: [REDACTED] HQ02  
To: [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
Sent: Wed Jun 15 08:56:05 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

[REDACTED]

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 9:50 AM

To: [REDACTED] HQDA; Tickner, Thomas

Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] HQ02

Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

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[REDACTED]  
[REDACTED]  
Assistant Director, Civil Works

3K94

W: [REDACTED]

M: [REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 9:07 AM  
**To:** [REDACTED] NWD; [REDACTED] HQ02; Halpin, Eric C HQ02  
**Cc:** Bertino, John J Jr NWO; Farhat, Jody S NWD02  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The information stated below is NOT accurate. There are no issues at Fort Peck at this time, and releases continue from the spillway at 65,000 cfs.

We have sent messages to the NWD and NWO Readiness channels to make sure reports are corrected. Travis and Eric, Please let the HQ Senior Leaders know that there are no problems at the Fort Peck spillway.

Regards,

[REDACTED]  
NWD Dam Safety Program Manager

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 8:41 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: [REDACTED]  
Cell: [REDACTED]  
[\[REDACTED\]@usace.army.mil](mailto:[REDACTED]@usace.army.mil)

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Wednesday, June 15, 2011 7:24 PM  
**To:** [REDACTED] NWD; [REDACTED] NWD02  
**Cc:** [REDACTED] HQ02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

**From:** [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 11:08 AM  
To: [REDACTED] HQ02  
Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: LeMaster, Darren D MAJ HQ02  
To: Deloach, Stephen R HQ02; Halpin, Eric C HQ02; Bank, Robert HQ02  
Sent: Wed Jun 15 08:56:05 2011  
Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Wednesday, June 15, 2011 9:50 AM  
To: [REDACTED] HQDA; Tickner, Thomas  
Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED], [REDACTED] HQ02; [REDACTED] HQ02  
Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

- In MVD, Bonne Carre 20-bays closed in the past 24-hrs. 230/350 bays are currently open with flow of 102kcfs. NSTR.

- In MVD, Morganza has 1/125 gates open with flow of 6.1kcfs. NSTR.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

- In NWD, Outflows reported: Oahe- 150 kcfs (49% FCS utilized); Big Bend - 146kcfs (0% FCS); Fort Randall 143kcfs (0% FCS); Gavins Point 150kcfs (0% FCS)

- In Hamburg, flood waters are expected to reach elevation of 916 this morning at the recently constructed levees. Construction continues with placement of HESCO Bastions to elevation of 919. NWD expects HESCO placement to be complete this morning. There are no reported execution/construction issues regarding flood protection vic Hamburg.

[REDACTED]  
[REDACTED]  
Assistant Director, Civil Works

3K94

W: ([REDACTED])

M: ([REDACTED])

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 8:56 AM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
NWD02  
**Subject:** Mainstem data for NWO sitrep 6/16/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/15 Pool Elev: 2252.3 ft-msl

24-hr change: 0.1'

6/15 Ave Inflow: 71,000 cfs

6/15 Ave Release: 65,900 cfs

6/16 Scheduled Release: 65,000 cfs

Garrison Dam (ND)

6/15 Pool Elev: 1853.6 ft-msl

24-hr change: 0.0'

6/15 Ave Inflow: 164,000 cfs

6/15 Ave Release: 140,200 cfs

6/16 Scheduled Release: 145,000 cfs

Oahe Dam (SD)

6/15 Pool Elev: 1618.6 ft-msl

24-hr change: -0.1'

6/15 Ave Inflow: 159,000 cfs

6/15 Ave Release: 150,400 cfs

6/16 Scheduled Release: 150,000 cfs



Big Bend Dam (SD)

6/15 Pool Elev: 1419.6 ft-msl

24-hr change: -0.1'

6/15 Ave Inflow: 150,000 cfs

6/15 Ave Release: 148,400 cfs

6/16 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/15 Pool Elev: 1363.6 ft-msl

24-hr change: 0.1'

6/15 Ave Inflow: 152,000 cfs

6/15 Ave Release: 143,100 cfs

6/16 Scheduled Release: 143,000 cfs

Gavins Point Dam (NE-SD)

6/15 Pool Elev: 1207.6 ft-msl

24-hr change: 0.1'

6/15 Ave Inflow: 153,000 cfs

6/15 Ave Release: 150,100 cfs

6/16 Scheduled Release: 150,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED]@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 8:42 AM  
**To:** [REDACTED] NWD02; Farhat, Jody S NWD02  
**Cc:** 'Rebecca.Kern@noaa.gov'  
**Subject:** RE: Precipitation Graphics (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Becky Kern from the Omaha WFO also found these:

Jan-May 2011 precipitation - note Eastern Montana was "record wettest":  
<http://www.ncdc.noaa.gov/sotc/service/national/Divisionalprank/201101-201105.gif>

This one covers the May 17-Jun 15 wet period:  
[http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_product&product=PNorm](http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=PNorm)

Here are the latest % normal pcpn maps from HPRCC:  
<http://www.hprcc.unl.edu/products/maps/acis/Last1mPNormUS.png>  
<http://www.hprcc.unl.edu/products/maps/acis/Last3mPNormUS.png>  
<http://www.hprcc.unl.edu/products/maps/acis/Last12mPNormUS.png>

[REDACTED]  
[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
[REDACTED]  
[REDACTED] (fax)

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 15, 2011 5:58 PM  
**To:** [REDACTED] NWD02; Farhat, Jody S NWD02  
**Subject:** Precipitation Graphics (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

One-month precipitation departures  
[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/1-month-archive.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/1-month-archive.shtml)

Three-month precipitation departures  
[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/3-month-archive.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/3-month-archive.shtml)

[REDACTED]  
USACE, Northwestern Division  
Missouri Basin Water Management Division  
[REDACTED]

**NWO**

**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 8:41 AM  
**To:** Farhat, Jody S NWD02; Berre, Laila M NWD02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Chief, Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: 503-808-3822  
Cell: 503-997-6764  
[surya.bhamidipaty@usace.army.mil](mailto:surya.bhamidipaty@usace.army.mil)

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Wednesday, June 15, 2011 7:24 PM  
**To:** [REDACTED] NWD; [REDACTED] NWD02  
**Cc:** [REDACTED] HQ02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

**From:** [REDACTED] HQ02  
**Sent:** Wednesday, June 15, 2011 11:08 AM  
**To:** [REDACTED] HQ02  
**Subject:** Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

**From:** [REDACTED] HQ02  
**To:** [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
**Sent:** Wed Jun 15 08:56:05 2011  
**Subject:** RE: Spring Flooding Update 15JUN -- as requested.

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v/r [REDACTED]

-----Original Message-----

From: [REDACTED] HQ02

Sent: Wednesday, June 15, 2011 9:50 AM

To: [REDACTED] HQDA; Tickner, Thomas

Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED] HQ02

Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

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[REDACTED]  
[REDACTED]  
Assistant Director, Civil Works

3K94

W: [REDACTED]

M: [REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 8:37 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** Blechinger, Erik T NWO  
**Subject:** RE: Scanned Document (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Got it!

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 1:19 PM  
**To:** [REDACTED] NWD02  
**Cc:** Blechinger, Erik T NWO  
**Subject:** FW: Scanned Document (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - You're doing such a great job on the MRJIC emails, can I ask you to also draft responses to letters? Here's one to get you started. I'm sure there will be many more to follow. The response to this could be focused on the Master Manual and the years of study and public scrutiny that went into it. I've attached the draft response to another letter I did this week that you can use to answer the snowpack issue, with the point being we look at the entire basin snowpack, rather than individual sites.

Thanks,  
Jody

-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Friday, June 10, 2011 11:46 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** Blechinger, Erik T NWO  
**Subject:** FW: Scanned Document (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody, my quick skim is this is critical of the MM, not you. But, another set of points we'll need to have responses to.

Thanks,

[REDACTED]  
-----Original Message-----

**From:** [REDACTED] NWD  
**Sent:** Friday, June 10, 2011 9:40 AM  
**To:** [REDACTED] NWD; Blechinger, Erik T NWO  
**Cc:** [REDACTED] NWD; Tipton, Robert A Col NWD  
**Subject:** FW: Scanned Document (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]/Eric,

I found this Fax addressed to BG McMahon on the machine near BMD. I'm not sure if you have seen it, and wanted to ensure you had a copy. It is very critical of Jody and a copy was sent to Senators Johanns and Harkin.

[REDACTED]  
[REDACTED]  
Director Regional Business  
Northwestern Division, USACE  
Phone: ([REDACTED])  
BB: ([REDACTED])

-----Original Message-----

From: [REDACTED] NWD  
Sent: Friday, June 10, 2011 9:34 AM  
To: [REDACTED] NWD  
Subject: FW: Scanned Document

[REDACTED]  
As requested. The last page is a copy of a copy of a poor quality map. If you would like me to try again I will.

Have a nice day.

[REDACTED]  
-----Original Message-----

From: [REDACTED]@usace.army.mil [mailto:[REDACTED]@usace.army.mil]  
Sent: Friday, June 10, 2011 9:29 AM  
To: [REDACTED] NWD  
Subject: Scanned Document

Please see the attached document.

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 8:31 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWO; Bertino, John J Jr NWO; Schenk, Kathryn M NWO; Ruch, Robert J COL NWO; Farhat, Jody S NWD02; Jordano, James J LTC NWO  
**Cc:** Oldham, Margaret NWO; Blechinger, Erik T NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO; Quinn, Kevin R NWO; Williamson, Eileen L NWO  
**Subject:** Missouri River Aerial Photos - Rulo to Blair and L-575 Levee Breach

Missouri River aerial flood photos taken 15 June from Rulo to Blair are located on branch shared drive at 2011\_Flood/Missouri River Aerial Photos/Mo River Rulo to Blair 15 June 2011. Photos are in directories by reach. There is a separate directory for L-575-Hamburg area.

Thanks,

[REDACTED]  
Hydraulic Engineer  
Water Control & Water Quality Section  
[REDACTED] (office)  
[REDACTED] (cell)



**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Thursday, June 16, 2011 8:02 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Statistics (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

The files are in Excel. Do you want me to send them for you? Otherwise, they are under v:\public\powerproduction\statistics and by individual project. The "System.xls" has the System plus current Sioux City sheets together.

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Wednesday, June 15, 2011 6:48 PM  
**To:** [REDACTED] NWD02  
**Cc:** [REDACTED] NWD02  
**Subject:** RE: Statistics (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Thanks, Kathy! I already referred a staffer from SD Representative Noem's office to the web site. She also asked if these are available in Excel format. Are they, or do you still use Bill's method?

Great work!

Jody

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Wednesday, June 15, 2011 3:00 PM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02; [REDACTED] NWD02  
**Subject:** Statistics (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI - the statistics are updated and out on the web. If anyone catches any errors, let me know and I will get them corrected right away. After a while, the numbers all look alike!

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED

**NWO**

**From:** CENWD-EOC NWD  
**Sent:** Thursday, June 16, 2011 12:09 AM  
**To:** CE-UOC HQ02  
**Cc:** CENWD-EOC NWD; [REDACTED] NWS; [REDACTED] NWD; [REDACTED]  
A HQ@NWD; [REDACTED] ULA; [REDACTED] NWD; [REDACTED] NWD;  
Blechinger, Erik T NWO; [REDACTED] NWW; [REDACTED] NWP; [REDACTED]  
[REDACTED] HQ02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED] NWD; [REDACTED]  
[REDACTED] NWK; Farhat, Jody S NWD02; [REDACTED] HQ; [REDACTED] HQ02; [REDACTED]  
[REDACTED] NWW; [REDACTED] NWD; [REDACTED] NWD; Hofmann, Anthony  
J COL NWK; [REDACTED] HQ02; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED]  
[REDACTED] NWD; Jordano, James J LTC NWO; [REDACTED] ULA@SAD; [REDACTED]  
NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWS; [REDACTED]  
[REDACTED] NWD; [REDACTED] SAW; [REDACTED] ULA@NWD; McMahon, John R BG  
NWD; Miles, Steven R COL NWP; [REDACTED] NWD; [REDACTED] NWD;  
[REDACTED] CELA@NWS; [REDACTED] NWD; [REDACTED] HQ02; [REDACTED]  
[REDACTED] NWD; Regis, John ; Ruch, Robert J COL NWO; [REDACTED] NWD; Rychlik, Dean L;  
[REDACTED] NWD; [REDACTED] HQ02; [REDACTED] SWD@SWG; [REDACTED]  
[REDACTED] NWD; Tipton, Robert A Col NWD; [REDACTED] NWD; [REDACTED]  
ULA@NWW; [REDACTED] HQ02; [REDACTED] NWD; Wetzel, Lindsey ; Wright,  
Anthony COL NWS  
**Subject:** NWD Operation Mighty Mo SITREP- as of 2200 15 June 2011 (UNCLASSIFIED)  
**Attachments:** NWD Missouri Basin Update - 061511.pdf; mainstembull 6\_15\_11.pdf; Missouri River Basin  
Water Management Situation Report 6-15-11.docx; NWD%20Contingency%20battle%  
20rhythm%2013%20JUN%202011.pdf

HQ UOC-

Missouri River Basin Flood Update as of 2200 15 June 2011 Pacific Time:

This report covers the operational period from 2130 14 June to 2200 15 June 2011 Pacific Time.

**A. Missouri River Basin Water Management Update:**

1. Posted the updated reservoir forecast today. The only adjustment was in releases at Fort Randall, in order to continue adjusting releases to manage the Gavins Point pool level.

The current release schedule for the 6 dams are as follows:

2. Fort Peck -Releases remain at 65,000 cfs today and will be held at that level through the weekend. We expect to reduce those releases back to 60,000 cfs next week as inflows drop off.

3. Garrison -140,000 cfs today, increasing to 145,000 cfs on Thursday and reaching the peak release of 150,000 cfs on Friday.

4. Oahe and Big Bend -Releases will remain at the peak level of 150,000 cfs.

5. Fort Randall - 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.

6. Gavins Point - reached the peak release of 150,000 cfs yesterday and will remain at that level.

Peak releases are expected to continue well into August.

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B. Omaha District Update:

1. BLUF: The raise of Ditch 6 will be completed in advance of water reaching higher than outer toe of levee. More detailed estimate is:

Segment #1 - Fill completed to 919, working on 3:1 slope on wet side, will continue poly placement on north end to tie-in and wrap 3 ft raise for entire length.

Segment #2 - Fill completed to 919, working on 3:1 slope on wet side, will commence poly placement today.

Segment #3 - Fill complete to 918, hauling borrow to complete to 919, will commence poly placement today.

Segment #4 - (HESCO's) Placement complete and working on finishing poly wrap closure and placing sandbags in sagged area.

Segment #5 - (HESCO's) Placement near completion and working on finishing poly wrap closure.

Closures: HWY 333 Completed and brought to 919 completing Segments #1 and #2; RR Closure between Segments #2 and #3 bringing up to grade to tie to 919; South RR Closure-City completed closure, fill completed to 919 and poly wrap placement underway by City At approximately 1300 CDT water surface elevation was 909.7 just west of the Hwy 333 closure.

2. [FOUO] MR Federal Levee L-601 IS a Concern: Mills County, IA: Requested direct assistance for protecting critical areas within Mills County near an area of concern in Levee 601 located approximately 1.25 mile south of Paddock Ave on 195th St in Mills County. Two rodent holes were discovered today approximately 20' apart that water was pushing through the levee. The sponsor reacted quickly and filled the holes to slow the water to a seep. USACE will construct a piggyback in this area. Contract award anticipated tomorrow. Areas of potential inundation include agricultural land, Bartlett, IA and I-29.

3. Montana: Ft. Peck Dam, MT - 24-hour surveillance continues on the dam and the spillway. Work to install a temporary overhead line to restore primary power to the spillway remains delayed due to parts needed for the power line. Backup generators are being used to make gate changes in the interim.

4. North Dakota: City of Williston requested technical and direct assistance. A meeting is being held with the city, USACE will attend the meeting and Omaha Hydrology and Hydraulics personnel will teleconference to provide assistance.

5. Nebraska: North Platte, NE - Airport Levee Raise construction is 90% complete and on schedule for construction being completed tomorrow June 16, 2011.

6. Bellevue (Offutt Air Force Base), NE - Papio NRD (sponsor of R613-R616) and Base Civil Engineering staff to develop course of action for 24-7 Levee Surveillance. On-Site training to be provided on Monday, 20 June.

7. Montana: Roosevelt County Wolf Point and Poplar, MT - providing technical assistance; NWO continues working with the Tribes to address their concerns.

8. North Dakota: Williston, ND - Continue to monitor boil areas and seepage areas along entire levee with increased seepage and some movement of material is occurring in the area of the sand berm. A construction representative has been sent to Williston from the Black Hills Area Office to monitor the contractors progress.

9. Fort Yates, ND - Standing Rock Sioux Tribe (SRST): Second contract is approximately 90% complete and should be completed tonight.

10. Garrison Dam, ND - No additional signs of distress on embankment noted. No other significant dam safety issues to report.

11. South Dakota: Pierre/Ft. Pierre, SD - Ft, Pierre Levee was turned over to the sponsor today, 15 June 2011.

12. Fort Randall Dam: Maintenance crews finished the spill repairs and have sealed the drains on the west side of the spillway this morning. Work will now move to the east side. Spillway flows were moved back to the west side this afternoon while the east side work was completed.

13. Oahe Dam; Big Bend Dam; Fort Randall Dam; and Gavins Point Dam; No significant dam safety issues.

C. Levee Surveillance: With most of the construction of temporary levees completed, and emergency placement of HESCOs and sandbags mostly complete. The focus of the SITREP will begin to shift towards reporting on the status of the protective measures and levees, as the peak flows and releases move through the upper basin and into the lower basin in the coming weeks. For ease of reporting, we will only be highlighting levees which have something significant to report. NWO is obviously monitoring many more levees within the Basin, but if there is NSTR, then they will not be discussed on this report:

1. Omaha-Missouri River RB: On south side near I80 overpass, a medium boil was ringed and is being monitored. Omaha levees from south end at WWTP, upstream to south of ConAgra HQ are generally in good shape, some seepage is occurring through manholes. Sponsor is aware and working on it. A boil present at Airport along 24" line is believed to be groundwater (piezometers show 5' of head nearby), and the problem will be fixed with filter fabric with sand. Sponsor is proactive and monitoring.

2. L627-MO River LB & Indian Creek RB: A 5'x7' sinkhole 4' deep formed around a storm sewer pipe near a drainage structure at the toe of the levee. The pipe will either be grouted or plugged and the space around the pipe will be grouted. Levee system appears to be in relatively good shape.

3. L601-Watkins Ditch RB: Water over 195th St and flowing well. Two 4-6" tunnels through levee that was flowing water through from river to landside and riverside has been filled with Bentonite and sandbagged. Land side has been sandbagged. Plastic is going to be placed to seal hole from riverside, however location of hole inlets on riverside is somewhat unclear.

4. R548- MO River and Little Nemaha: Team was called to investigate reported sloughing near staff gage 24. The county had placed dirt on riverside of levee and not adequately compacted and it washed away with high water. Team recommended that the sponsor place sandbags in that area. Sponsor is also reporting that sand boils have stopped flowing likely because river level is 1' lower than yesterday.

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C. Kansas City District Update:

1. NWK's webpage was updated with current flood information and inundation maps and can be found at <http://www.nwk.usace.army.mil/index.cfm>

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D. Northwestern Division Update:

1. NWD EOC remains at level III activation (extended hours 0530-1930 daily). Please note the attached updated NWD Battle rhythm. The time for the Missouri River stakeholder call has been changed to 1500 CST daily.

2. Based on lessons learned from MVD, Division is engaging with both NWO and NWK on the potential use of the Aerial ARRK in the next phase of the flood fight. The Aerial ARRK was used in MVD's AOR to great success as well. Costs are about \$6-10K per day for both system, helicopter, and operator. If Districts confirm interest, NWD will submit a request to HQUSACE for funds as needed.

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E. Columbia River Basin Update as of 2150 Pacific Time 14 June 2011:

Due to the stable conditions within the Columbia Basin, a regional call between NWD and NWS, NWP, and NWW has been canceled for this week. If conditions continue to improve, we should be able to declare the threat over for the Columbia basin. We anticipate being able to accurately make that projection at the end of June.

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We want to share the links below in order to "paint the picture" of the region, and also pre-empt questions and RFI's by providing access to the same real-time data that NWD and its Districts use.

Useful Links:

For current reservoir levels, inflows and releases, visit the Missouri River Basin Water Management website at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>

Updated Daily: Details on the reservoirs in the daily bulletin at <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1>

Release data for all six reservoirs through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>

This ftp site contains an excellent pictorial presentation of the Missouri River Basin system. Please take time to review, as it will help you to better understand the situation and the system we manage.

<ftp://ftp.usace.army.mil/pub/nwd/Mo%20River%20Flooding%206%20June%20update/>

[FOUO] The NWD Common Operating Picture. (Contains National Levy Data base, 1-5 day QPF, Dams, Emergency Management layers etc.)  
<https://egis.nwd.usace.army.mil/pls/apex/f?p=200:1:1908605002954834>

Please direct and questions, concerns, or comments to the NWD EOC or the undersigned. Our Districts and Water Management Office have also been instructed to direct all inquiries to the NWD-EOC. The NWD RCO Battle rhythm is also attached and it is the most current as of 15 June 2011.

UOC, please acknowledge Receipt.

V/R

[REDACTED]  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers  
Desk: [REDACTED]  
Cell: [REDACTED]

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# Missouri River Basin Stages

15 June 2011



US Army Corps of Engineers  
BUILDING STRONG.

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
<b>A</b>	<b>Bismarck</b>	16	18.4	150 kcfs 20.6	June 19	
<b>B</b>	<b>Pierre</b>	13	18.8	150 kcfs 18.7	June 7	
<b>C</b>	<b>Yankton</b>	20	24.8	150 kcfs n/a	June 14	
<b>D</b>	<b>Sioux City</b>	30	33.2	170 kcfs 35	June 15	44.28 (1952)
<b>E</b>	<b>Decatur</b>	35	37.7	175 kcfs 40	June 15	43.5 (1943)
<b>F</b>	<b>Blair</b>	26	31.5	175 kcfs 32	June 15	33.5 (1952)
<b>G</b>	<b>Omaha</b>	29	33.1	175 kcfs 34	June 16	40.2 (1952)
<b>H</b>	<b>Nebraska City</b>	18	25.4	200 kcfs 27	June 16	27.19 (1993)
<b>I</b>	<b>Brownville</b>	33	39.6	205 kcfs 43	June 16	44.3 (1993)
<b>J</b>	<b>Rulo</b>	17	23.8	210 kcfs 25.5	June 17	26.63 (2010)
<b>K</b>	<b>St. Joseph</b>	17	23.1	215 kcfs 27	June 17	32.07 (1993)
<b>L</b>	<b>Atchison</b>	22	25.9	215 kcfs 30	June 17	31.63 (1993)
<b>M</b>	<b>Leavenworth</b>	20	21.7	215.kcfs 27	June 17	35.34 (1993)

# Missouri River Basin Stages

14 June 2011



US Army Corps of Engineers  
BUILDING STRONG.

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	25.2	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	24.1	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	20.9	220 kcfs 25	350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	23.4	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	21.9	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	24.6	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	21.0	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	20.6	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	17.7	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	24.0	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	21.7	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	18.3	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	24.6	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)





US Army Corps  
of Engineers  
Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem Reservoir Bulletin

Bulletin Updated: 6/15/11 10:51 AM

Project	Project Information					Current Data (as of 00:00)					Occupied Storage						
	Elevations (ft msl)			Storage Capacity (ac-ft)		Elevation (ft msl)	Dly Elev. Change	Total Occupied Storage (ac-ft)	Previous Day Avg.		Multi-Use (ac-ft)	Annual FC		Exclusive (ac-ft)	Exclusive (%)		
	Top of Multi-Use	Top of Annual FC	Top of Exclusive	Multiple Use	Annual FC				Annual FC	Annual FC							
												Top of Exclusive	Multiple Use			Annual FC	Annual FC
Top of Multi-Use	Top of Annual FC	Top of Exclusive	Multiple Use	Annual FC	Elevation (ft msl)	Dly Elev. Change	Total Occupied Storage (ac-ft)	Previous Day Avg. Inflow (dsf)	Release (dsf)	Multi-Use (ac-ft)	Annual FC (ac-ft)			Annual FC (%)	Exclusive (ac-ft)		
TODAY																	
Project Data Date/Time 6/15/2011																	
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2252.21	0.10	19,010,000	79,000	65,800	14,788,000	100.0	2,704,000	100.0	1,518,000	156.3
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.65	0.27	23,650,000	180,000	140,100	18,110,000	100.0	4,222,000	100.0	1,318,000	89.5
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.64	0.06	22,590,000	156,000	150,200	18,834,000	100.0	3,201,000	100.0	555,000	50.4
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.74	-0.15	1,606,000	148,000	151,500	1,606,000	99.1	0	0.0	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1363.53	0.41	4,292,000	162,000	142,100	3,124,000	100.0	1,168,000	89.2	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.44	0.11	377,000	149,000	148,400	307,000	100.0	70,000	81.4	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			71,525,000			56,769,000		11,365,000		3,391,000	
YESTERDAY																	
Project Data Date/Time 6/14/2011																	
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2252.11	0.18	18,985,000	86,000	65,400	14,788,000	100.0	2,704,000	100.0	998,453	102.8
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.38	0.03	23,572,000	190,000	138,700	18,110,000	100.0	4,222,000	100.0	1,240,000	83.3
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.58	0.31	22,580,000	145,000	150,400	18,834,000	100.0	3,201,000	100.0	545,000	46.5
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.89	-0.15	1,614,000	151,000	145,900	1,614,000	99.6	0	0.0	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1363.12	0.60	4,253,000	163,000	139,200	3,124,000	100.0	1,129,000	86.2	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.33	-0.07	376,000	145,000	144,800	307,000	100.0	69,000	80.2	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			71,380,000			56,777,000		11,325,000		2,783,453	
DAM INFORMATION																	
Surveillance Period Triggers				Record Pool Level		Design	Top of		Design		Top of		RECENT ELEVATIONS		06/15		
Weekly		Daily		24 hour		Elev		Year		Dam Crest		Surcharge		Crest		Top of Gate	
2246.0		2247.0		1854.0		2252.0		1975		2280.5		2256.1		2225.0		2250.0	
1850.0		1854.0		1854.8		1854.8		1975		1875.0		1858.5		1825.0		1854.0	
1617.5		1618.7		1618.7		1618.7		1995		1660.0		1644.4		1596.5		1620.0	
1422.0		1422.0		1423.0		1422.1		1991		1440.0		1433.6		1385.0		1423.0	
1365.0		1370.0		1372.0		1372.2		1997		1395.0		1379.3		1346.0		1375.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0		1210.7		1210.7		1960		1234.0		1221.4		1180.0		1210.0	
1210.0		1210.0															

## Missouri River Basin Water Management Situation Report – 6-15-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. Relatively high inflows continue to occur into Fort Peck Reservoir and have increased into Garrison Reservoir from primarily rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/15/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	79.0	65.8	2250	2252.2	0.1
Garrison	180.0	140.1	1854	4853.7	0.3
Oahe	156.0	150.2	1620	1618.6	0.1
Big Bend	148.0	151.5	1423	1419.7	-0.2
Fort Randall	162.0	142.1	1375	1363.5	0.4
Gavins Point	149.0	148.4	1210	1207.4	0.1

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. An issue surfaced yesterday that required the spillway at Fort Randall to be shut and the flood control tunnels to be used until some repairs can be completed sometime today.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/15/11)**

Reservoir	Current	Total	Remaining	Exclusive	% Excl Left
	kAF	kAF	kAF	kAF	
Fort Peck	19,010	18,463	-547	971	-56
Garrison	23,650	23,821	171	1,489	11
Oahe	22,590	23,137	547	1,102	50
Big Bend	1,606	1,798	192	60	100
Fort Randall	4,292	5,418	1,126	985	100
Gavins Point	377	450	73	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Note that the release from Fort Peck has been increased to 65 kcfs today and will be held at that level for some of the next week before it is returned to 60 kcfs. Other than that, the releases 1 week out will be at the currently anticipated maximum releases at the other five reservoirs, with Gavins Point joining Oahe and Big Bend at 150 kcfs today. A full listing of the data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/15/11)**

Reservoir	Yesterday	Forecast	7 days out	14 days out	Pre-2011
	kcfs	Today	20 June	27 June	Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	65.8	65	60	60	35
Garrison	140.1	140	150	150	65
Oahe	150.2	150	150	150	59
Big Bend	151.5	150	150	150	74
Fort Randall	142.1	143	148	148	67
Gavins Point	148.4	150	150	150	70

## River Conditions

Levees have been or are currently being constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages. Note that the stage at Pierre is currently just above the forecasted crest elevation for the current upstream release of 150 kcfs.

**Table 4. Missouri River Stage Data for 6/15/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.4	20.6	mid-Jun
Pierre, SD	13	18.8	18.7	mid-Jun
Sioux City, IA	30	32.9	35-37	mid-Jun thru July
Decatur, NE	35	37.6	40-42	mid-Jun thru July
Omaha, NE	29	33.1	34-36	mid-Jun thru July
Nebraska City, NE	18	25.5	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.9	27-32	mid-Jun thru July
Kansas City, MO	32	25.1	30-39	mid-Jun thru July
Waverly, MO	20	23.8	27-31	mid-Jun thru July
Boonville, MO	21	21.0	27-33	mid-Jun thru July
Hermann, MO	21	21.7	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still about 3 feet below the constructed levee crests.

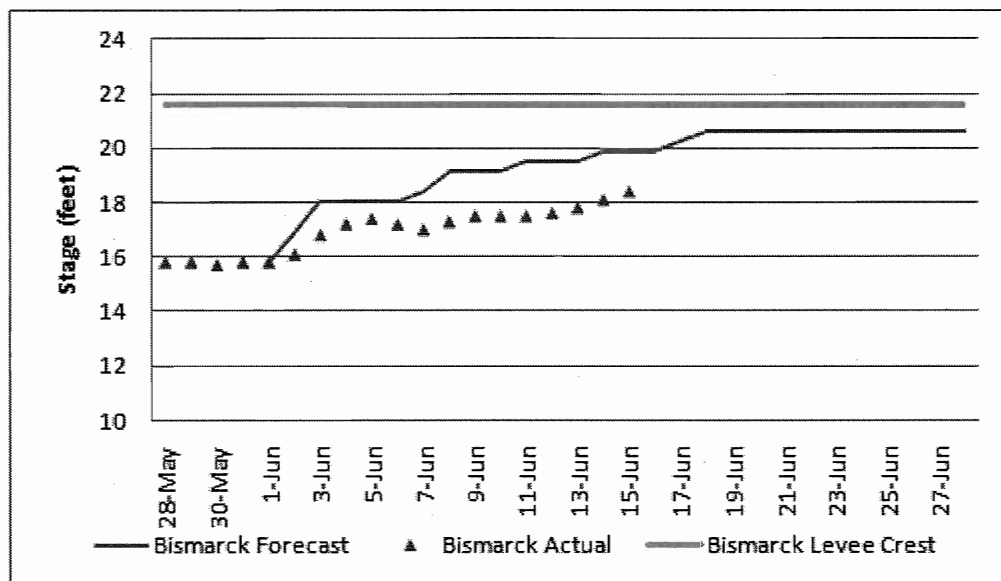


Figure 1. Missouri River stages at Bismarck, North Dakota.

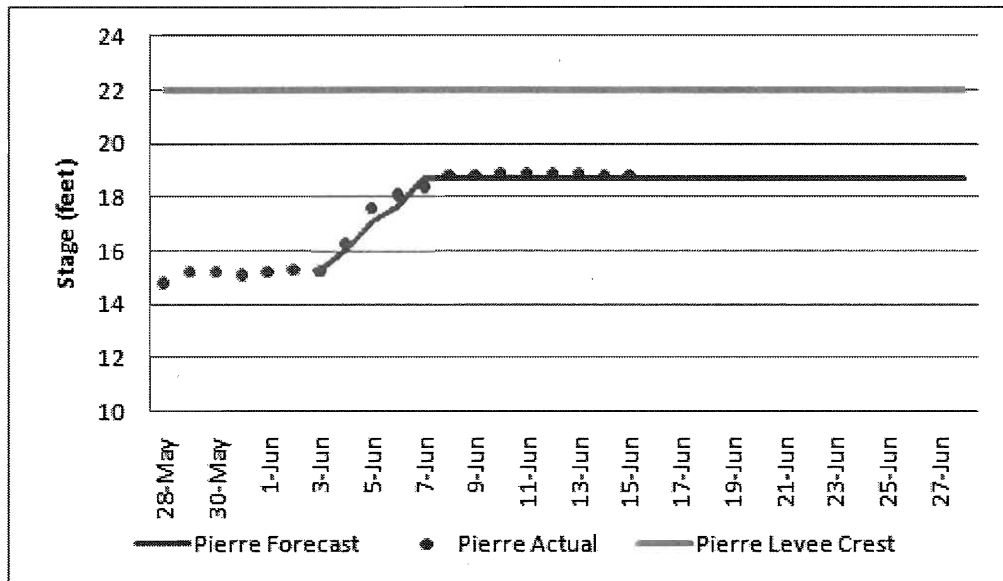


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and in a large area of the lower basin. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

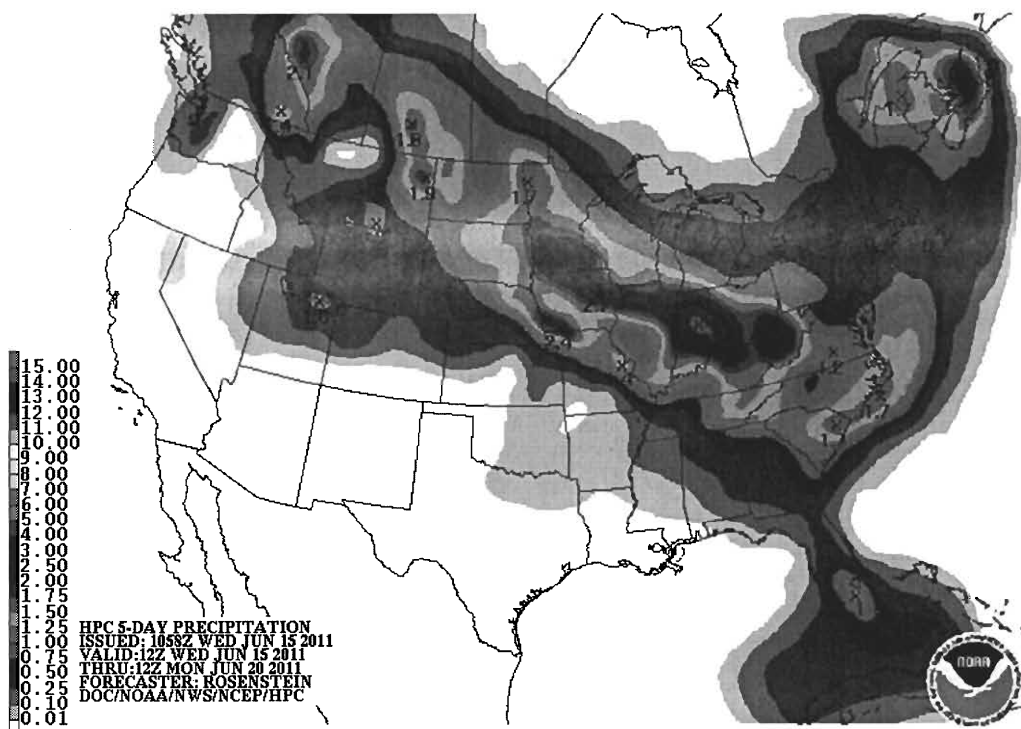


Figure 3. 5-day total QPF ending 0700 Monday, June 20, 2011.

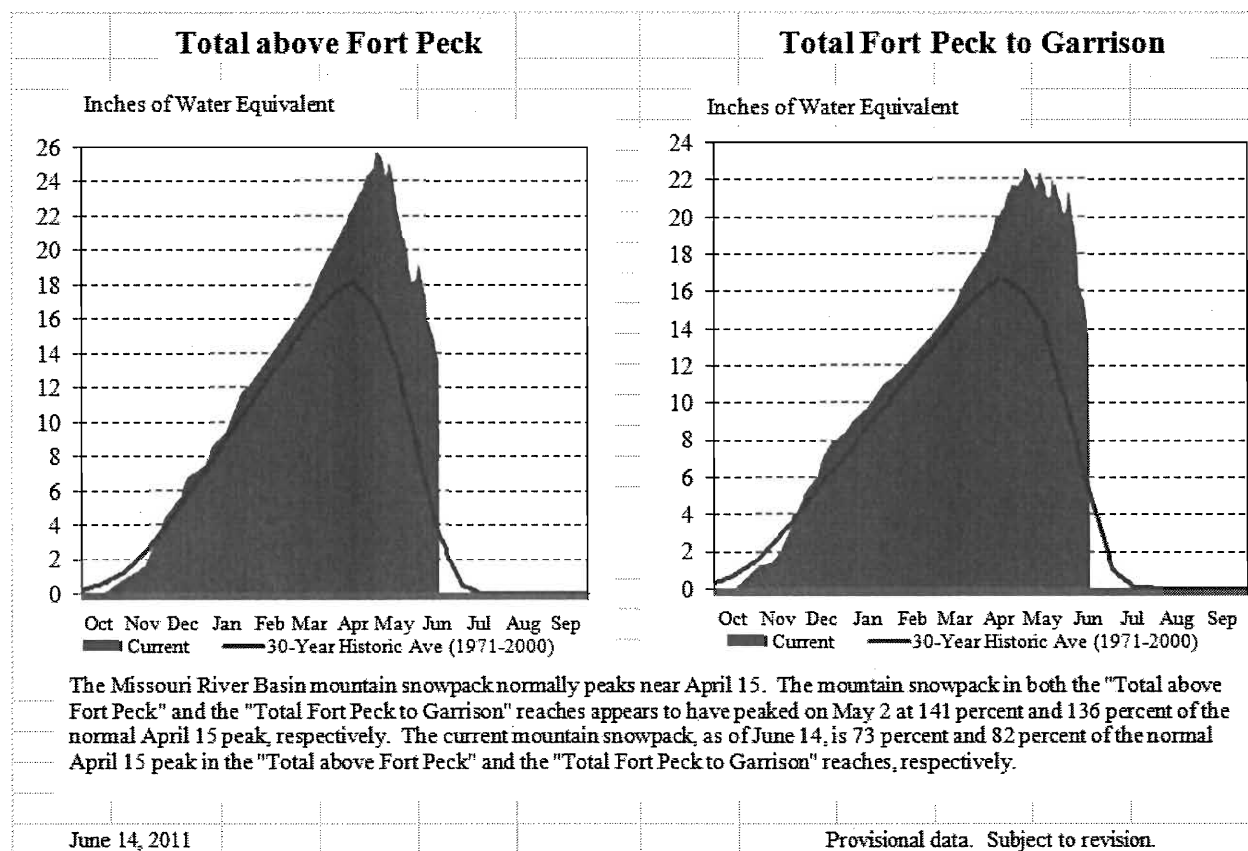


Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 14, 2011.

## Current Actions and Notable Information

Levee construction for six cities is basically completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. The Omaha District has been working with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. A levee is also currently being constructed to protect Hamburg, Iowa. A full breach of a 10- to 15-foot section of the L-575 levee occurred June 13 as a result of the fourth slump in the past 2 weeks. The Hamburg levee is currently anticipated to be completed by Friday, June 17. A required closure structure is currently being placed. Also, this failure is expected to result in the closure of Interstate 29, making this major north-south highway closed above and below Omaha, Nebraska. The failure of this levee occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is getting very close to the 2010 maximum (still 0.24 feet below).

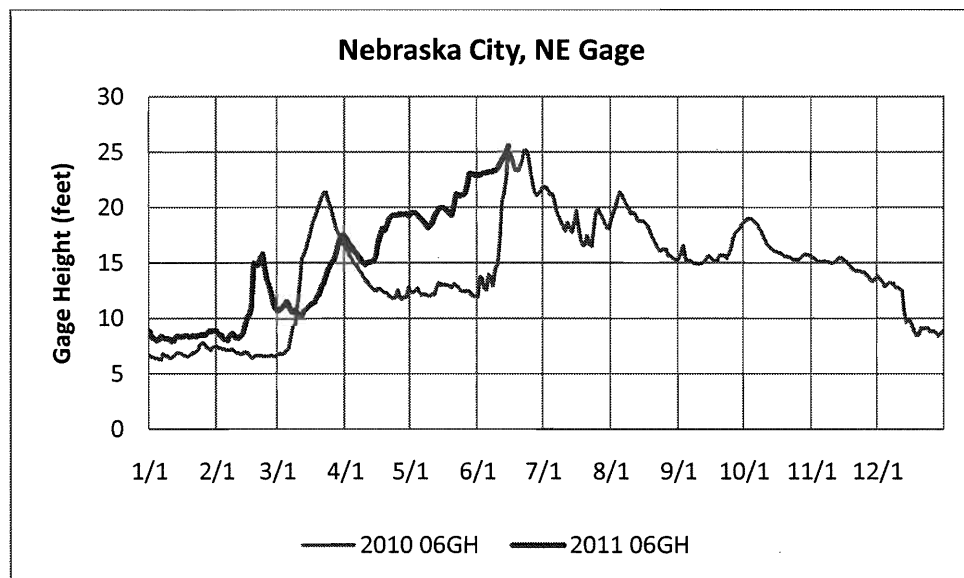


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri Monday, June 13. This location is across the river from Rulo, Nebraska. The gage plot for this location is shown below as Figure 6. Another factor, such as duration of water against the levee or back-to-back years with water against the levee appears to be playing a role in the failure of this levee as well as the levee near Hamburg.

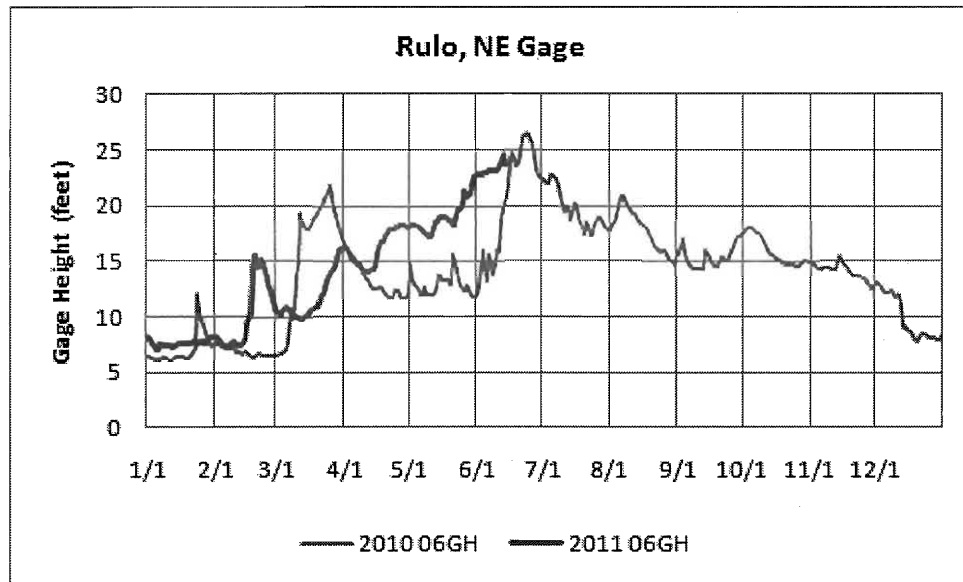


Figure 6. River stages at Rulo, Nebraska for 2010 and 2011.

Southeastern North Dakota and north central South Dakota experienced heavy rains yesterday and over night. Much of this rainfall will drain primarily into Lake Oahe and the James and Big Sioux Rivers that empty into the Missouri River downstream from Gavins Point Dam. Figure 7 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

**NWS Central Region: Current 1-Day Observed Precipitation**  
**Valid at 6/15/2011 1200 UTC- Created 6/15/11 17:41 UTC**

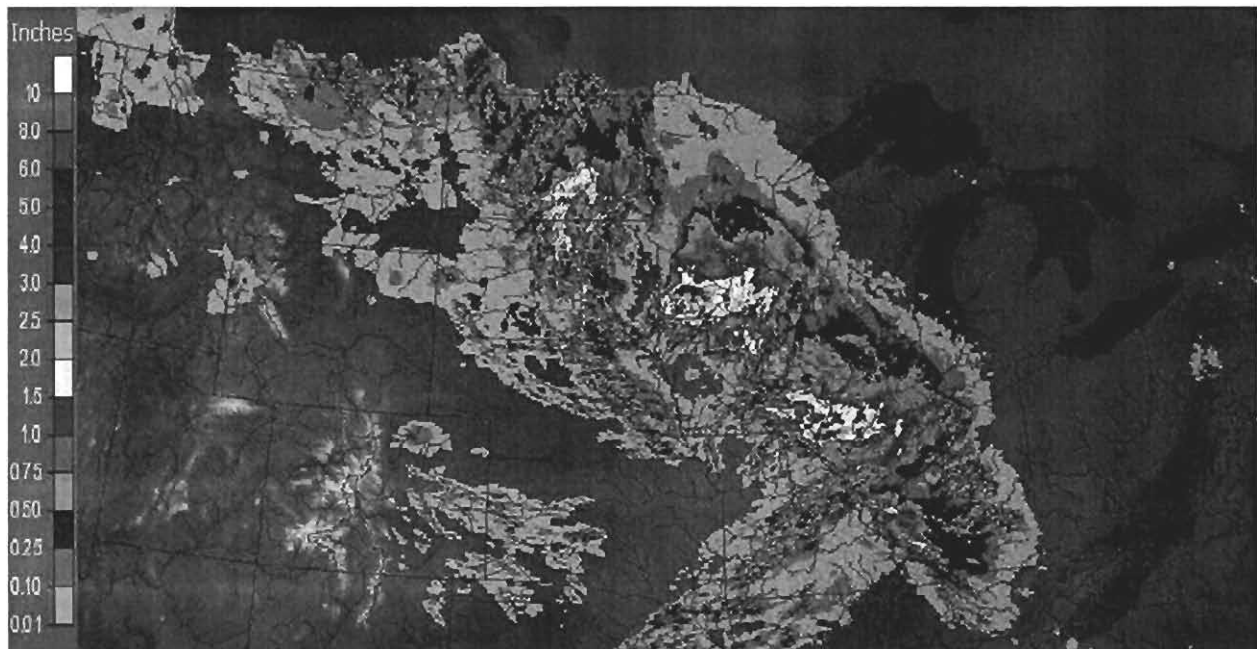


Figure 7. Rainfall on the Central Region of the United States for June 15, 2011.



# NWD 2011 Spring Flood / Tornado Response Regional Battle Rhythm

Time (PST)	Time (CST)	Event	Lead	Notes	Information
0600 (M,W,F)	0800 (M,W,F)	HQUSACE Conference Call	HQUSACE	Update to HQUSACE	Passcode: [REDACTED]
0630 (Daily)	0830 (Daily)	FEMA/NWD Morning Report	[REDACTED]		
0700 (Daily)	0900 (Daily)	Omaha Hydro/Weather Briefing	[REDACTED]		
0900 Currently Tue / Thur	1100 Currently Tue/Thur	Columbia River Basin Executive Call	BG McMahon	CG discussion with District	Access: [REDACTED] Host: [REDACTED] Security: [REDACTED]
1030 (Daily)	1230 (Daily)	NWD Internal EOC Shift Update Brief	[REDACTED]	NWD EM Personnel	Access: [REDACTED] Host: [REDACTED] Security: [REDACTED]
1100 (Daily)	1300 (Daily)	NWO CMT Brief	[REDACTED]		Access: [REDACTED] Security: [REDACTED]
1200 (Daily)	1400 (Daily)	HQUSACE Conference Call	HQUSACE	Update to HQUSACE	Access Code: [REDACTED]
1200 (Daily)	1400 (Daily)	NWK CMT Brief	[REDACTED]	Coord between (NWD,NWK,ESF3)	Access: 1 [REDACTED] Security: [REDACTED]
1300 (Tues)	1500 (Tue)	Regional Water Operations Call	[REDACTED]	Regional discussion with BoR, BPA	Access Code: [REDACTED]
1300 (Thurs)	1500 (Thu)	Columbia River Basin WM Regional Call	[REDACTED]	Regional discussion with WM COP	Access Code: [REDACTED]
1400 (Daily)	1600 (Daily)	NWS CMT Briefing	[REDACTED]	Update to NWS Commander	Access Code: [REDACTED] Security: [REDACTED]
1430 (Daily)	1630 (Daily)	Missouri River Basin Executive Call	BG McMahon	CG Discussion with District	Access: 3051273 Host: [REDACTED] Security: [REDACTED]
1500 (Daily)	1700 (Daily)	Missouri River Basin Stakeholders Call	Erik Blechinger		Access: [REDACTED] Security: [REDACTED]
1600 (Daily)	1800 (Daily)	NWD Internal EOC Shift Update Brief	[REDACTED]	NWD EM Personnel	Access: [REDACTED] Host: [REDACTED] Security: [REDACTED]
1645 (Daily)	1845 (Daily)	Suspense to release all ENGLink Taskers	[REDACTED]	Placeholder for time if call is needed	Currently not being executed
1800 (Daily)	2000 (Daily)	Columbia River Basin Stakeholders Call	As Needed		
1900 (Daily)	2100 (Daily)	Release all District SITREPS	[REDACTED]	SITREP on Joplin MO& Flooding	
1900 (Daily)	2100 (Daily)	Write/Release NWD SITREP to HQ	[REDACTED]		

☐ Columbia River Basin Events

☐ Missouri River Basin Events

**As of: 13 JUN 11**

~~██████████~~ F NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 8:53 AM  
**To:** Love, Raymond E MAJ NWD; ~~██████████~~ NWD; ~~██████████~~ NWD; ~~██████████~~  
N NWD  
**Cc:** Thomas, Kimberly S NWO; Bertino, John J Jr NWO  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

All,

The information below regarding Fort Peck is not accurate. There are no issues with the Fort Peck spillway and the outlet tunnels are not being used. Work is being done at the Fort Randall spillway. Omaha District can provide the details.

VR,  
Jody

-----Original Message-----

**From:** ~~██████████~~ NWD  
**Sent:** Thursday, June 16, 2011 8:41 AM  
**To:** Farhat, Jody S NWD02; ~~██████████~~ NWD02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

~~██████████~~ PL, ~~██████████~~ PL, ~~██████████~~ PL, ~~██████████~~ PL, ~~██████████~~ PL  
~~██████████~~ Business Technical Division  
Northwestern Division, U.S. Army Corps of Engineers  
Phone: ~~██████████~~  
Cell: ~~██████████~~  
~~██████████~~ [usace.army.mil](mailto:██████████@usace.army.mil)

-----Original Message-----

**From:** ~~██████████~~ HQ02  
**Sent:** Wednesday, June 15, 2011 7:24 PM  
**To:** ~~██████████~~ NWD; ~~██████████~~ NWD02  
**Cc:** ~~██████████~~ HQ02  
**Subject:** FW: Spring Flooding Update 15JUN -- as requested. (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Any additional info to share on Fort Peck?

-----Original Message-----

**From:** ~~██████████~~ HQ02  
**Sent:** Wednesday, June 15, 2011 11:08 AM  
**To:** ~~██████████~~ HQ02

Subject: Fw: Spring Flooding Update 15JUN -- as requested.

!!

----- Original Message -----

From: LeMaster, Darren D MAJ HQ02

To: [REDACTED] R HQ02; [REDACTED] HQ02; [REDACTED] HQ02

Sent: Wed Jun 15 08:56:05 2011

Subject: RE: Spring Flooding Update 15JUN -- as requested.

Gentlemen- FYSA. The Fort Peck spillway closure and water flow (mentioned below) was reported in the NWD daily report. This was discussed some by the G3 at the morning UOC meeting. I wanted to share and provide SA.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

v/r [REDACTED]

-----Original Message-----

From: LeMaster, Darren D MAJ HQ02

Sent: Wednesday, June 15, 2011 9:50 AM

To: Jorns, Byron COL HQDA; [REDACTED]

Cc: Grisoli, William T MG HQ02; [REDACTED] HQ02; MacDonald, Glen A MAJ HQ; [REDACTED] HQ02; Smith, Thomas P COL HQ02

Subject: Spring Flooding Update 15JUN -- as requested.

Gentlemen- follow-up from your call. The following summary provides a quick update from the 0900-UOC meeting. Slides attached.

- Nationally, there are 2 storm systems moving across central CONUS from 15-16 and 20-21 JUN. In the past 7-days, 3-5-inches of precipitation was reported over Montana and 3-6 inches over the upper Mississippi. H&H reported that Garrison exclusive Flood Control Storage (FCS) utilized is expected to move from 83% to 100% due to this rain event in Montana.

- In MVD, Bonne Carre 20-bays closed in the past 24-hrs. 230/350 bays are currently open with flow of 102kcfs. NSTR.

- In MVD, Morganza has 1/125 gates open with flow of 6.1kcfs. NSTR.

- At Fort Peck, NWD closed the spillway and is utilizing the outlet works due to water flowing from the piezometers and between concrete slabs in/on the spillway. There is no report of a structural issue and the UOC is collecting additional information. No structural/safety concern is reported and for visibility (new information). A follow-up report expected. Fort Peck outflow is 65kcfs and utilizing 100% of exclusive FCS.

- In NWD, Outflows reported: Oahe- 150 kcfs (49% FCS utilized); Big Bend - 146kcfs (0% FCS); Fort Randall 143kcfs (0% FCS); Gavins Point 150kcfs (0% FCS)

- In Hamburg, flood waters are expected to reach elevation of 916 this morning at the recently constructed levees. Construction continues with placement of HESCO Bastions to elevation of 919. NWD expects HESCO placement to be complete this morning. There are no reported execution/construction issues regarding flood protection vic Hamburg.

v/r Darren

[REDACTED]  
Assistant Director, Civil Works  
3K94

W: [REDACTED]  
M: ([REDACTED])

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 9:33 AM  
**To:** [REDACTED] MVD; [REDACTED] NWD02  
**Cc:** [REDACTED] LRP; [REDACTED] MVD; [REDACTED] MVS; H [REDACTED]  
**Subject:** RE: MO DNR request for MO River flooding on MVD AOR (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]

Our forecasts continue to show that the 150,000 cfs release from Gavins Point will be sufficient, though we've said all along that number could inch up if we continue to get very heavy rain in the upper basin. We don't have a high flows contingency release forecast, so I assume what they are referring to is the potential range of stages and flows we expect on the lower river based on normal to high tributary inflows. The link to that information is below:

<http://www.nwo.usace.army.mil/html/op-e/flood2011/citizenresources.html> for the Omaha District flood website

or

<http://www.nwk.usace.army.mil/Flood/index.cfm> for the Kansas City District flood website

or

<http://www.nwo.usace.army.mil/html/op-e/WaterMgt/Below%20Gavins%20-%20Range%20of%20Flows%20and%20Stages%20-%20Final.pdf> to go right to the stages/flow ranges.

The following link provides an explanation of how the range of flows was developed:

Let me know if you have any questions

jody

-----Original Message-----

**From:** [REDACTED] MVD  
**Sent:** Thursday, June 16, 2011 7:41 AM  
**To:** Farhat, Jody S NWD02; [REDACTED] NWD02  
**Cc:** [REDACTED] LRP; [REDACTED] MVD; [REDACTED] MVS; H [REDACTED] MVS  
**Subject:** MO DNR request for MO River flooding on MVD AOR (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

Can tell from news reports that you have your hands full with the flooding. We have a letter from the MO DNR requesting that MVD provide them information on how the Missouri River flooding will impact the MVD AOR along the lower Missouri and Mississippi Rivers, particularly the Birds Point-New Madrid Floodway. They are concerned that your high flows contingency scenario may reflood the floodway.

As part of our response, we plan to provide the attached slides to address their concerns. They include NWS forecasts for several points of interest and the most recent NWS 28-day forecast for Cairo with the relevant stages identified which would result in flows entering the floodway. We also propose to update this with each new 28-day forecast until the flooding concern eases.

Before sending this to the DNR, however, I want to make sure it is consistent with any products you are providing the public, especially DNR so that we send the same message. Also, [REDACTED], our Acting Regional Business Director has a Thursday afternoon call each week with your SES on this subject.

Please look over the attached. I have a 0800 call this morning but will try to call you after that meeting to discuss.

Thanks

[REDACTED]  
[REDACTED] Watershed Division  
Mississippi Valley Division, USACE  
1400 Walnut Street, Vicksburg, MS 39181-0080  
Office: [REDACTED] Fax: [REDACTED]  
Blackberry: [REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 9:38 AM  
**To:** aronallo@gmail.com; youask@ksfy.com  
**Subject:** Corps statement on 2011 reservoir operation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

One of the primary purposes of the Missouri River Mainstem Reservoir System is to reduce risks from floods to people, homes and businesses. Dams do not stop floods, rather they allow flood waters to be captured and then released in a controlled manner.

Releases from the Missouri River dams last fall and throughout the winter of 2010 were above normal in order to evacuate all flood waters from 2010, which was the third highest water year on record in the Missouri River Basin. On 28 January 2011, the full flood capacity of the Missouri River reservoir system was available for this year's runoff season. At that point, and all the way through the first of May, we had no reason to think we needed to increase releases beyond normal levels.

The flood of 2011 is a perfect storm of events: 1) heavy plains snow; 2) extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in one month (300% of normal in May); and 3) additional mountain snowpack accumulation to record levels in May and a delayed melt. Our reservoirs captured the record runoff in the basin during May. This provided people downstream time to prepare for higher than normal releases required to make room in the reservoirs for the record mountain snowpack, which still needed to enter the reservoirs.

The May 2011 runoff into the Missouri River Basin above Sioux City was 10.5 MAF - our normal May runoff based on historical records is 3.3 MAF. This was the second highest single month of runoff since 1898. The only higher was in 1952, a significant flood year, with 13.2 MAF in April. Not only is the May inflow unprecedented, but the yearly inflow is now forecast to be 54.6 MAF, more than twice the normal 24.8 MAF, and will be the highest ever.

The Missouri River Mainstem Reservoir System, which includes 6 dams, has been operated this year in accordance with the Master Manual. The Master Manual is a water control plan that helps guide how much water should be released, when, and for how long from the 6 reservoirs for the benefit of the entire Missouri River basin. The reservoir system is multiuse and is operated for 8 Congressionally-authorized purposes - it is not optimized for any one purpose. A primary purpose is flood risk management. The reservoirs were designed to capture spring and summer runoff and allow the Corps to manage releases throughout the year to accommodate the other 7 authorized purposes: navigation, irrigation, water supply, hydropower, fish and wildlife, recreation, and water quality.

The Corps revised the Master Manual in 2004 following a 14-year period of public involvement throughout the Missouri River Basin to gain input on how the System should be operated. Hundreds of alternatives were analyzed and considered during this process. The current Master Manual reflects the input from the public and Tribes throughout the entire Basin on how the reservoirs could best be operated to serve all the purposes for which they were authorized and constructed.

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil  
Office: 402-996-3840

Classification: UNCLASSIFIED  
Caveats: NONE



**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 12:47 PM  
**To:** 'Thimsen, Anne'  
**Cc:** McMahon, John R BG NWD; Anderson, G Witt NWD  
**Subject:** Follow up data from Corps of Engineers (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Anne,

I've posted the information we discussed yesterday on our public ftp site. Included are the Excel version of the project statistics, a PowerPoint version of the flood presentation posted on our website, and a PowerPoint containing plots of pool elevations and total system storage for 4 of the 6 mainstem reservoirs for the past 15 years. Big Bend and Gavins Point are essentially flow-through projects with very little flood control storage, so I did not include them in the presentation. They are operated in the same narrow band every year regardless of runoff conditions.

The link to the ftp site is: <ftp://ftp.usace.army.mil/pub/nwd/Noem%20Data/>

You also requested information on precipitation, so I've included links to some of the National Weather Service websites we use for historical information.

Jan-May 2011 precipitation - note Eastern Montana was "record wettest":  
<http://www.ncdc.noaa.gov/sotc/service/national/Divisionalprank/201101-201105.gif>

This one covers the May 17-Jun 15 wet period:  
[http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_product&product=PNorm](http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=PNorm)

Here are the latest % normal pcpn maps from HPRCC:  
<http://www.hprcc.unl.edu/products/maps/acis/Last1mPNormUS.png>  
<http://www.hprcc.unl.edu/products/maps/acis/Last3mPNormUS.png>  
<http://www.hprcc.unl.edu/products/maps/acis/Last12mPNormUS.png>

One-month precipitation departures  
[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/1-month-archive.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/1-month-archive.shtml)

Three-month precipitation departures  
[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/3-month-archive.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/3-month-archive.shtml)

Let me know if I can be of any further assistance.

Regards,  
Jody

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)

Office: 402-996-3840

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

From: Farhat, Jody S NWD02  
Sent: Thursday, June 16, 2011 1:15 PM  
To: [REDACTED] NWK  
Subject: RE: Request for information (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - the best information we have now is that high releases from the mainstem reservoir system will extend well into August. That is the only timeline we have discussed, the actual date will depend on how much rain falls in the upper basin.

Regards,  
Jody

-----Original Message-----

From: Benjamin, Kyla S NWK  
Sent: Thursday, June 16, 2011 11:00 AM  
To: Farhat, Jody S NWD02  
Subject: Request for information

Jody,

I'm working in the JIC and received a call this morning from SFC Daniel Taylor at the Joint Force Headquarters - J2. He is requesting some form of written guidance for the anticipated duration of the high flows in order to submit a justification to higher headquarters for the use of military assets. Do we already have that somewhere in writing?

His contact info is 402-309-7348 or [daniel.taylor7@us.army.mil](mailto:daniel.taylor7@us.army.mil)

Thanks,

[REDACTED]  
[REDACTED]  
[REDACTED] Project Management  
Environmental Resource Section  
Planning Branch  
Kansas City District  
US Army Corps of Engineers  
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 1:34 PM  
**To:** Monty\_Gartin@cargill.com  
**Cc:** [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02  
**Subject:** RE: Cargill Inc - Blair Nebraska (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Monty,

We would be happy to discuss the planned releases with you. As you might expect, we are very busy with the ongoing flood event, so we would prefer setting up a conference call, or if you prefer a face-to-face meeting it would be preferable if you came to our office.

Regards,

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil  
Office: 402-996-3840

-----Original Message-----

**From:** Monty Gartin@cargill.com [mailto:Monty Gartin@cargill.com]  
**Sent:** Wednesday, June 15, 2011 4:43 PM  
**To:** Management, Missouri Water NWD02  
**Subject:** Cargill Inc - Blair Nebraska

To Jody Farhat and/or Staff,

We are Cargill Corn Milling in Blair Nebraska, our site is a bio-refinery which includes 6 joint ventures and has an assets value over 2 billion dollars. We have been working with the Army Corps of Engineers from the Omaha District daily. Our relationship with the Corps of engineers has been very positive and we look forward to more interactions.

We recently met with [REDACTED] to help us understand the potential impact of the current release to our site. This meeting helped us to better understand the science and the protocols used to manage the current situation on the Missouri river. [REDACTED] discussed with us his role and his understanding of the Corps future release plans.

We know how busy you are, but we would also like to meet with you or a senior member of your staff to better understand future plans and release scenarios. We have created a 3.5 mile berm around our site, but are still very concerned with the economic impact to our customers and the state of Nebraska if we shutdown.

We would like to invite you to our campus for a formal review and discussion on our mutual goals around the safety and well being of our site and community. We look forward to working with the Army Corps of Engineers in a positive and proactive manor. If coming to Blair is not feasible, we are very willing to come to you.

Thank you on behalf of our employees and community,

Monty G. Gartin

Build, operate, and maintain RIGHT to become the partner of choice.

Monty Gartin | Health, Safety & Security Team Leader | Cargill Corn Milling 650 Industrial Park Drive | Blair, NE 68008 | 402-533-1381 | Cell 402-306-3709 | [monty.gartin@cargill.com](mailto:monty.gartin@cargill.com)

cid:609003111@05022009-1FD7 Caring Leadership > Systems Excellence > Injury Free Lifestyle

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 1:40 PM  
**To:** [REDACTED]; MRJIC  
**Cc:** [REDACTED] NWO  
**Subject:** RE: Corps Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

It is a bad data point which is not unusual with data collection platforms. When the data is screen this point will be removed. We have made no changes to our releases from Gavins Point dam.

Jody

-----Original Message-----

**From:** [REDACTED] MVP  
**Sent:** Thursday, June 16, 2011 12:54 PM  
**To:** MRJIC; Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWO  
**Subject:** FW: Corps Question (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

In the interest of rumor and panic control, please let me know if the spike shown on the attached is anything other than an aberration.

Mr. Miller is the situation action officer for the Dakota Dunes area. He told me he got a call from a woman in the area who spotted the graph for Yankton on the internet. (I don't know if she is a reporter or a resident of Dakota Dunes.) I told him that occasionally we get these weird aberrations showing on the River Forecast Center web-site, but I would check into it for him. It appears that the stage is currently showing levels more appropriate for today:

06/16 17:30 24.81ft 194kcf.

The gage at Yankton on the James River is declining.

Any further explanation that I can provide?

[REDACTED]  
U.S. Army Corps of Engineers  
at South Dakota EOC  
[REDACTED] (cell)

-----Original Message-----

**From:** [Danielle.Dracy@state.sd.us](mailto:Danielle.Dracy@state.sd.us) [mailto:[Danielle.Dracy@state.sd.us](mailto:Danielle.Dracy@state.sd.us)]  
**Sent:** Thursday, June 16, 2011 12:43 PM  
**To:** Magee, Rick L MVP  
**Subject:** FW: Corps Question

From: Allan Miller [<mailto:allan.miller980@gmail.com>]  
Sent: Thursday, June 16, 2011 12:28 PM  
To: Dracy, Danielle  
Subject: Corps Question

Danielle, here is a the graphic from the NOAA site that I talked with Rick from the Corps on. I did do some research on my end and looks like the graph did spike. I could find 24.88 @ 0700, 25.93 @ 1045, and 24.77 @ 1100. So the graph did show a spike. Could you forward this to him so he can give us back an answer on why it spiked to let the lady know. It's more rumor control than anything, but told Sandy I would track it down. Thanks, Allan

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 1:42 PM  
**To:** [REDACTED] NWD  
**Subject:** RE: glitch in yankton dcp graph (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

It is a bad data point which is not unusual with data collection platforms. When the data is screen this point will be removed. We have made no changes to our releases from Gavins Point dam.

Jody

-----Original Message-----

**From:** Love, Raymond E MAJ NWD  
**Sent:** Thursday, June 16, 2011 1:38 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: glitch in yankton dcp graph (UNCLASSIFIED)

Jody,

So were we releasing at 160k accidentally or just reporting accidentally the wrong information?

MAJ Raymond Love  
Contingency Operations Officer  
Readiness and Contingency Operations  
Northwestern Division  
US Army Corps of Engineers  
Desk: 503-808-3793  
Cell: 503-260-3819  
[raymond.e.love@usace.army.mil](mailto:raymond.e.love@usace.army.mil)  
[Raymond.E.Love@usace.army.smil.mil](mailto:Raymond.E.Love@usace.army.smil.mil)  
Emergency Satellite Phone: 8816-5142-9533 Emergency Cell: 503-888-3656

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-----Original Message-----

**From:** CENWD-EOC NWD  
**Sent:** Thursday, June 16, 2011 11:35 AM  
**To:** DLL-CENWD-DDE  
**Subject:** FW: glitch in yankton dcp graph (UNCLASSIFIED)

-----  
**From:** [REDACTED] NWD  
**Sent:** Thursday, June 16, 2011 11:34:50 AM



To: CENWD-EOC NWD; Love, Raymond E MAJ NWD; [REDACTED] NWD; [REDACTED] HQ02;

[REDACTED] NWD

Subject: Fw: glitch in yankton dcp graph (UNCLASSIFIED) Auto forwarded by a Rule

Situational awareness only. May be an issue at tonights stakeholder meeting or worse, up to HQs.

---

From: Blair, Amy E NWK  
To: DLL-NWK-MRJIC  
Sent: Thu Jun 16 11:10:19 2011  
Subject: glitch in yankton dcp graph (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Just got a call from a person in Dakota Dunes who said she was clicking around on our website and saw we raised releases at Gavins Point to 160k cfs. While we would certainly inform the public first, I spoke with Jody, who assured this was a glitch in their system and it happens from time to time. They will fix this immediately.

This is a concern for us, solely because the woman who called said she thought we were lying to "the public" about releases and has already reported it to the media. I've attached a screenshot if by the time you click the link, its missing.

<http://www.nwd-mr.usace.army.mil/rcc/plots/jpegs/ykn.jpg>

Amy E. Blair  
Outreach Specialist  
Kansas City District,  
U.S. Army Corps of Engineers  
Office: 816-389-3393  
Cell: 816-728-3651  
[Amy.E.Blair@usace.army.mil](mailto:Amy.E.Blair@usace.army.mil) <<mailto:Amy.E.Blair@usace.army.mil>>

Missouri River Recovery Program on Facebook at <http://www.facebook.com/moriverrecovery>  
<<http://www.facebook.com/moriverrecovery>>  
Missouri River Recovery Program on Youtube at <http://www.youtube.com/moriverrecovery>  
<<http://www.youtube.com/moriverrecovery>>

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 4:44 PM  
**To:** [REDACTED] NWK  
**Subject:** Re: Lower Kansas River Lake Releases (UNCLASSIFIED)

Any change to milford releases?

----- Original Message -----

**From:** [REDACTED] NWK  
**To:** [REDACTED] NWK; [REDACTED] NWD02; Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWK; [REDACTED] NWK; DLL-NWK-ED-HC  
**Sent:** Thu Jun 16 14:27:15 2011  
**Subject:** Lower Kansas River Lake Releases (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

16 June 2011

The Kansas Basin lakes have evacuated a significant portion of their flood control pools since we were able to begin releases last Monday. The Tuttle Creek and Perry pools are now storing water in only about 5% of the flood control pool and have ample storage available for expected summer inflows. Milford Lake still has over 20% of the flood control pool occupied, but the lake level is falling about 0.8 feet per day.

The Missouri River stages downstream of Kansas City continue to increase. The stages at the Waverly gage are forecasted to approach 27 feet and could rise further if unexpected rainfall occurs.

To reduce the risk of excessive Missouri River stages, and make space available as the mainstem releases work their way downstream, we will begin reducing Kansas Basin project releases today. The release from Tuttle Creek Lake is being reduced from 8,000 to 4,000 cfs today and to 200 cfs (lowflow) tomorrow. The release from Perry Lake will be reduced from 5,000 to 2,500 cfs today and to 25 cfs (lowflow) tomorrow. We will continue to closely monitor Missouri River conditions and the status of Milford Lake.

15 June 2011

No changes in Kansas River lake releases from yesterday. However, we continue to closely monitor our downstream gages at Kansas City and Waverly. We are tracking the Waverly gage specifically, as the NWS forecast is projecting stages near the 27 ft stage (the publicly released lower flow scenario with a Gavins release of 150,000 cfs). We do not want the Kansas River releases to contribute to stages above the lower flow scenario. The current NWS projections show 26.7 feet on June 20-21. We are coordinating closely with MRBWM and their forecast is slightly lower at 26.3 on June 20 (197 kcfs). We will re-evaluate tomorrow morning as the NWS forecast may change. I know that the public is tracking the releases and the NWS forecasts, based on calls I have received in the past two days. Levee overtopping forecasts show that the lowest levees in that area begin overtopping between 29.5 and 30 at the Waverly gage.

14 June 2011

Since the Kansas River lakes' flood pool evacuation releases are something we are monitoring closely and coordinating with the MRBWM, we felt it appropriate to track the status in a daily email.

No changes in Kansas River lake releases from yesterday (see below).

[REDACTED]  
[REDACTED] Water Management Section  
USACE - Kansas City District  
[REDACTED]

-----Original Message-----

From: [REDACTED] NWK  
Sent: Monday, June 13, 2011 2:05 PM  
To: Hofmann, Anthony J COL NWK; [REDACTED] NWK; Farhat, Jody S NWD02  
Cc: [REDACTED] NWD02; [REDACTED] NWK; [REDACTED] NWK  
Subject: RE: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

We have resumed flood pool evacuation releases from the Kansas River Lakes based on the delayed arrival of the peak Gavins Point releases, as discussed below and in a conversation this morning with [REDACTED]. Milford is now releasing 9,000 cfs and projected to reach multipurpose pool in 14 days. We are limiting releases to 9,000 cfs to reduce the risk of outlet channel damage. Tuttle Creek is now releasing 8,000 cfs and projected to reach multipurpose pool in 10 days. Perry is releasing 5,000 cfs and projected to reach multipurpose pool in 7 days. Clinton is near multipurpose at this time and will remain at a low flow release of 21 cfs.

We will continue these operations in close coordination with the MRBWM - Reservoir Control Center. We are also closely monitoring the upstream gages to track the progression of the Gavins Point release peak flows.

[REDACTED]  
[REDACTED] Water Management Section  
USACE - Kansas City District  
[REDACTED]

-----Original Message-----

From: [REDACTED] NWK  
Sent: Monday, June 13, 2011 9:14 AM  
To: Farhat, Jody S NWD02; Hofmann, Anthony J COL NWK; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWK; McMahon, John R BG NWD; Anderson, G Witt NWD; Blechinger, Erik T NWO; Tipton, Robert A Col NWD; [REDACTED] NWD  
Cc: Grode, Kevin R NWD02; [REDACTED] NWD02; [REDACTED] NWK; [REDACTED] NWD NWK  
Subject: RE: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Jody, based on our conversation this morning we now understand that increased MR flow travel times to Rulo and south will be delayed due to overtopping of embankments north of Omaha. I will have [REDACTED] and [REDACTED] coordinate with Kevin the expected travel times to determine how much additional time we have to draw down Milford - we will resume releases today. Please let us know of any changes to MR travel times so we have time to adjust on the Kansas.

Appreciate all the good work you are doing!

Thanks, r

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Sunday, June 12, 2011 5:51 PM

To: Hofmann, Anthony J COL NWK; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWK; [REDACTED] D NWK; McMahon, John R BG NWD; Anderson, G Witt NWD; Blechinger, Erik T NWO; Tipton, Robert A Col NWD; [REDACTED] NWD

Cc: Farhat, Jody S NWD02; [REDACTED] NWD02; [REDACTED] A NWD02

Subject: FW: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

COL Hofmann,

Sir, in response to an issue raised on the NWK MCT call this afternoon, I offer the following information:

My office has been coordinating with the NWK Water Management office regarding evacuation of the tributary reservoirs prior to peak stages reaching the Kansas City area. On May 29th we received the attached deviation request, which was approved via email almost immediately and followed by a formal letter on May 31. When we learned last weekend that the district was cutting back releases from Milford and other tributary reservoirs in response to the increasing flows on the Missouri River, Kevin Grode sent the email below to Eric Shumate suggesting that the District continue to evacuate storage until the stages at Kansas City and/or Waverly reach the lower end of the published stage range with 150,000 cfs release from Gavins. Apparently this was discussed within NWK and the decision was made to reduce outflows to minimum release requirements.

It is still my position that the tributary reservoirs should be evacuated prior to peak stages being reached in the reach below Kansas City. Personally, I believe that the 29 May deviation request was sufficient to allow continued evacuation, but if the district would like to request a more specific deviation request, I would certainly approve it immediately.

The daily bulletin indicates 200,000 acre-feet of water remains to be evacuated from Milford. Based on discussions with Hydrologic Engineering in the Omaha District, they expect it will take a week or more for all the overbank storage between Gavins Point and Omaha to fill. Extend that philosophy to the reach from Omaha to Kansas City, and it appears there are several weeks remaining before peak stages from the 150,000 cfs release reach Kansas City.

I strongly encourage Kansas City District to resume evacuation of all tributary storage unless local conditions dictate another strategy.

VR,  
Jody

-----Original Message-----

From: [REDACTED] NWD02

Sent: Sunday, June 12, 2011 4:12 PM

To: Farhat, Jody S NWD02

Subject: FW: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Jody,

The attached is the deviation we approved. Below is what I sent to Eric last Sunday. When I spoke with him last Monday he had indicated that he had spoken with Rex Goodnight and that they had decided to stick with their original plan.

[REDACTED]  
[REDACTED]  
[REDACTED] Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
402. [REDACTED]  
402. [REDACTED] (fax)

-----Original Message-----

From: [REDACTED] NWD02  
Sent: Sunday, June 05, 2011 6:00 PM  
To: [REDACTED] NWK  
Subject: Deviation Modification for Lower Kansas Projects and Truman (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Just throwing some words out here for you to consider.

Reference attached deviation request from May 29, 2011 - Deviation Request from Missouri River Control Points).

The extreme and historical releases being made from Gavins Point are directly related to the reservoir conditions at the upper mainstem projects. All three upper projects are currently well into their exclusive flood control pools and are expected to remain in those zones, at least until August, and perhaps later. Currently, Fort Peck is in its surcharge zone and Garrison is within inches of being in its surcharge zone.

Given the extreme flooding conditions in the mainstem system, it is necessary that tributary reservoir regulation also be considered in order to maintain proper risk management. Attached is a planning tool, which outlines a likely range of flows of stages with a Gavins Point release of 150 kcfs, that was collaboratively developed by MRBWM, NWO, NWK and the MBRFC (National Weather Service). This planning tool is being used to assist with risk reduction measures along the Missouri River from Gavins Point to the mouth.

<http://www.nwo.usace.army.mil/html/op-e/maps/WaterMgt/Below%20Gavins%20-%20Range%20of%20Flows%20and%20Stages%20-%20Final.pdf>

Kansas City - 220 kcfs to 350 kcfs (30 ft to 39 ft) Waverly - 230 kcfs to 370 kcfs (27 ft to 31 ft) Boonville - 260 kcfs to 420 kcfs (27 ft to 33 ft) Hermann - 300 kcfs to 470 kcfs (27 ft to 33 ft)

Then reference the Corps' FUI stage forecast for the next 2 weeks:  
<http://www.nwd-mr.usace.army.mil/rcc/reports/internal/showrep.cgi?3STAG1>

Since the NWS forecast only goes out 5 days, it isn't going to assist with this due to travel time from the projects to each of the Missouri River stations. We could use our FUI forecast or the NWS does produce a monthly forecast every Wednesday. Might be able to get them to produce it Monday and Friday also.

For the next 2 weeks the Missouri River stations, per this morning's FUI:

- ... Kansas City (MKCF) stage forecast does not exceed 28 feet.
- ... Waverly (WVMF) stage forecast does not exceed 26 feet.
- ... Boonville (BNMF) stage forecast does not exceed 24 feet.
- ... Hermann (HEMF) stage forecast does not exceed 23.5 feet.

Since all stations are below their respective lower end of the likely range, then releases from flood control storage zones can be made in such a manner that the total flood control release does not exceed the lower stage level. In this case, it would be Waverly (26 feet to 27 feet) that would be the adjusted control point. Per the latest rating curve, there's about an 18 kcfs difference between 26 and 27 feet at Waverly. Or we could use flows. Doesn't matter - 6 of one, half dozen of the other. However, it seems that the stage is driving factor, not the flow.

How flood control storage releases are made should be based on each project's current level of flood control storage as well as downstream constraints, such as Milford and Tuttle Creek. However, 3 weeks from now, it may be a different project. We'll have to work out how we're going to monitor/adjust through the period ... revisit every few days or after a major precipitation event ... it'll be tricky due to the travel time.

Talk to you at 8:30.

- [REDACTED]

[REDACTED]  
[REDACTED]

Missouri River Basin Water Management,  
Northwestern Division, USACE  
402 [REDACTED]  
402 [REDACTED] (fax)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

**[REDACTED] F NWO**

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 4:58 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; Love, [REDACTED] NWD; [REDACTED] NWO; [REDACTED] S NWO; [REDACTED]  
M SAW  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] Jr NWO; [REDACTED] D NWD02; [REDACTED] NWD02; Har [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 16 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 16 Jun 2011.docx

Classification: UNCLASSIFIED

Caveats: NONE

fyi

Classification: UNCLASSIFIED

Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**16 June 2011**

We posted the updated reservoir forecast to the web this afternoon. We continue to make adjustments to Fort Randall releases to manage the Gavins Point pool level. Based on flow measurements below Gavins Point dam, we believe that the dam is currently releasing less than 150,000 cfs. The rating curves for the spillways are based on engineering formulas, so we are . continue to use measurements below all the dams to verify actual releases.

The anticipated peak releases remain the same: 65,000 cfs at Fort Peck, and 150,000 cfs at the lower 5 dams: Garrison, Oahe, Big Bend, Fort Randall and Gavins Point.

The release schedule for the 6 dams are as follows:

- Fort Peck –Releases remain at 65,000 cfs today and will be held at that level through the weekend. We expect to reduce those releases back to 60,000 cfs next week as inflows drop off.
- Garrison –145,000 cfs today, increasing to 150,000 cfs on Friday.
- Oahe and Big Bend –Releases will remain at the peak level of 150,000 cfs.
- Fort Randall – 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.
- Gavins Point – releases remain at 150,000 cfs.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 68%, down 52% from this year's peak

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 74%, down 46% from this year's peak

As of June 14

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 60% ydy

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 59% ydy



**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 8:52 PM  
**To:** Johnston, Paul T HQ@ NWO  
**Subject:** RE: River Residents' complaints (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

10:00 or 10:30 would be best. I need to leave here for the DVIDS event by about 11:00.

-----Original Message-----

From: Johnston, Paul T HQ@ NWO  
Sent: Thursday, June 16, 2011 5:02 PM  
To: Farhat, Jody S NWD02  
Subject: FW: River Residents' complaints

Jody,

Are you available to talk with Bob Watson tomorrow? Pick a time and I'll make the arrangements with him.

Paul

-----Original Message-----

From: Bob Watson [<mailto:bwatson@newstribune.com>]  
Sent: Thursday, June 16, 2011 3:56 PM  
To: Johnston, Paul T HQ@ NWO  
Cc: MRJIC  
Subject: River Residents' complaints

PAUL ----

((Or whoever else is responsible for Media Questions these days)) ----

We have talked with several Missouri River residents and farmers, who have complained that the Corps of Engineers BLEW IT this spring, holding on to water in the Upstream Reservoirs WAY TOO LONG, when you knew you had a DEEP SNOWPACK .... and that you could have avoided a lot of the current flooding concerns if you just had started releasing water into the lower Missouri when the river was at 10 feet instead of the current, higher levels.

((I'm pretty sure this isn't the first time you've heard this, or similar, complaint .... ))

1) Does the Corps have a reaction/comment to this complaint?

2) Can you show us how the numbers you had on snowpack and rainfall in the Upper Missouri Basin, and in the Mountains that feed the Upper Missouri, affected the decisions the Corps made on storing or releasing water from the Mainstem Dam reservoirs??

3) What part of the Corps' River Management duties control the decisions you've made this spring???

Please respond by e-mail, or call me Friday after 10 a.m. CDT at 573/761-0245.

Bob Watson  
Jefferson City News Tribune  
3:55 p.m.  
6-16-2011

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 8:55 PM  
**To:** [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] D NWD02; [REDACTED] C NWD02; [REDACTED] M NWD02; [REDACTED] Jr NWO  
**Subject:** FW: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments (UNCLASSIFIED)  
**Attachments:** Central Region Seasonal Outlook- July and JAS 2011.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

-----Original Message-----

**From:** Doug Kluck [<mailto:doug.kluck@noaa.gov>]  
**Sent:** Thursday, June 16, 2011 1:43 PM  
**To:** Sarah Palmer  
**Cc:** Bridget Radcliff; [Craig.Derickson@ne.usda.gov](mailto:Craig.Derickson@ne.usda.gov); Barnes, Verlon; [stas@wapa.gov](mailto:stas@wapa.gov); Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; Blechinger, Erik T NWO; [REDACTED] NWK; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED] NWD; [wayne.nelsonstastny@fws.gov](mailto:wayne.nelsonstastny@fws.gov); [rhonda.knudsen@bia.gov](mailto:rhonda.knudsen@bia.gov); [steven.mietz@nps.gov](mailto:steven.mietz@nps.gov); [lleake@usgs.gov](mailto:lleake@usgs.gov); [mrolsen@usbr.gov](mailto:mrolsen@usbr.gov); [depperly@usbr.gov](mailto:depperly@usbr.gov); [dfritz@usbr.gov](mailto:dfritz@usbr.gov); [Don.Simpson@blm.gov](mailto:Don.Simpson@blm.gov); [Tony.Herrell@blm.gov](mailto:Tony.Herrell@blm.gov); [ssbrooks@blm.gov](mailto:ssbrooks@blm.gov); [theresa.hanley@blm.gov](mailto:theresa.hanley@blm.gov); [brian.yanchik@dot.gov](mailto:brian.yanchik@dot.gov); [cothern.joe@epa.gov](mailto:cothern.joe@epa.gov); [berkley.jim@epa.gov](mailto:berkley.jim@epa.gov)  
**Subject:** Re: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments

Hi All,

Here is a summary of the monthly and seasonal aspects of the weather/climate in the future. The interpretation is that the chances for wetter and cooler conditions continuing in the upper Missouri basin for the next 3 months are enhanced. So not great news and I hope it's wrong.

There will be a Webinar tomorrow at 10am CDT to discuss this and other climate matters in NOAA's Central Region. Please let me know if cannot sign up.

Doug

<<http://www1.gotomeeting.com/g2w/images/475700441/55976021197099447//embed.jpg>>

Monthly Climate Call

Join us for a Webinar on June 17

<<http://www1.gotomeeting.com/register/475700441>>

Space is limited.

Reserve your Webinar seat now at:

<https://www1.gotomeeting.com/register/475700441>

Monthly Climate Call

Title: Monthly Climate Call

Date: Friday, June 17, 2011

Time: 10:00 AM - 11:00 AM CDT

After registering you will receive a confirmation email containing information about joining the Webinar.

System Requirements

PC-based attendees

Required: Windows® 7, Vista, XP or 2003 Server

Macintosh®-based attendees

Required: Mac OS® X 10.4.11 (Tiger®) or newer

<<http://img.gotomeeting.com/g2mimages/1x1.gif>>

--

Doug Kluck

Central Region Climate Services Director 7220 NW 101st Terrace Kansas City, MO

O: 816-994-3008

Classification: UNCLASSIFIED

Caveats: NONE

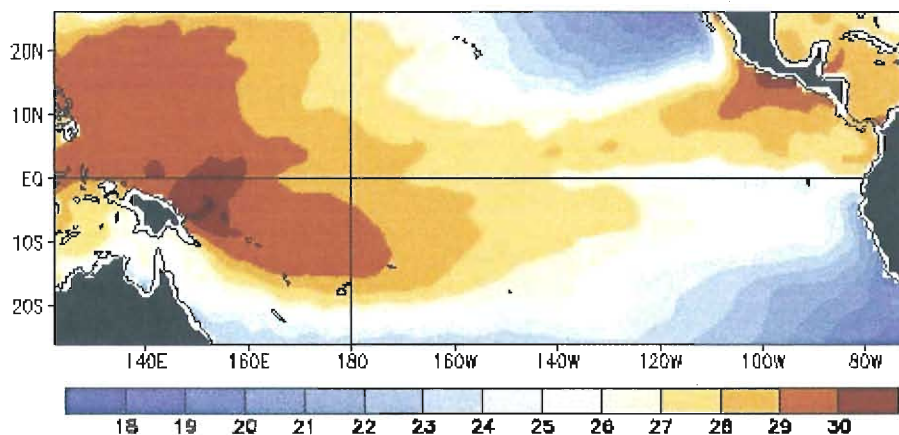
## Central Region Climate Outlook and Summary

### Pacific Ocean Sea Surface Temperatures

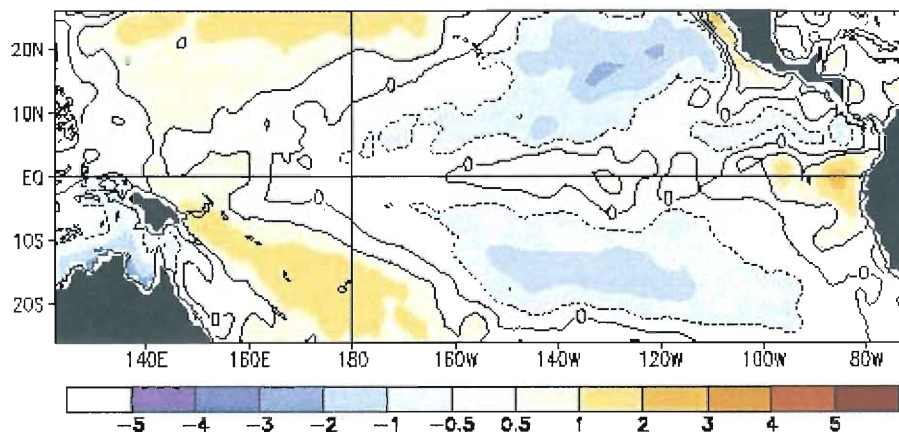
The big news is that a transition from La Niña to ENSO-neutral conditions occurred during May 2011. ENSO-neutral conditions have developed and are expected to continue at least through the Northern Hemisphere summer 2011.

Sea surface temperatures (SSTs) have returned to normal conditions. As of June 9 all of the weekly SST departures in the Niño regions were between  $-0.2^{\circ}\text{C}$  and  $0.7^{\circ}\text{C}$  with Niño3.4 at  $0.0^{\circ}\text{C}$ , and the last three-monthly SST anomaly in Niño3.4 was  $-0.6^{\circ}\text{C}$  in March through May. Positive subsurface SST anomalies have spread across the eastern equatorial Pacific Ocean. In general, the oceanic and atmosphere anomalies recently noted all reflect the transition from La Niña to ENSO-neutral conditions.

Observed Sea Surface Temperature ( $^{\circ}\text{C}$ )



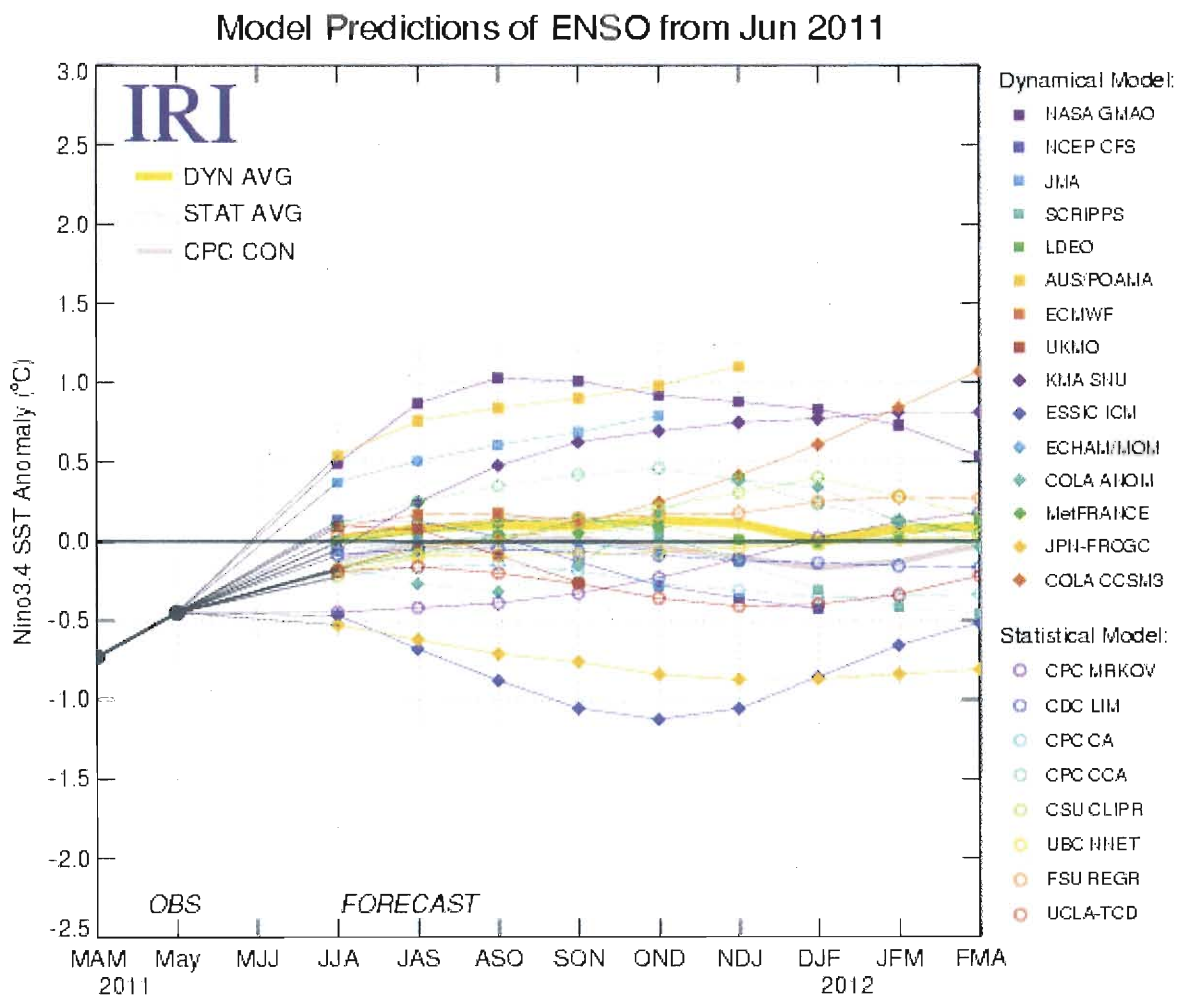
Observed Sea Surface Temperature Anomalies ( $^{\circ}\text{C}$ )



7-day Average Centered on 08 June 2011

## ENSO Model Predictions

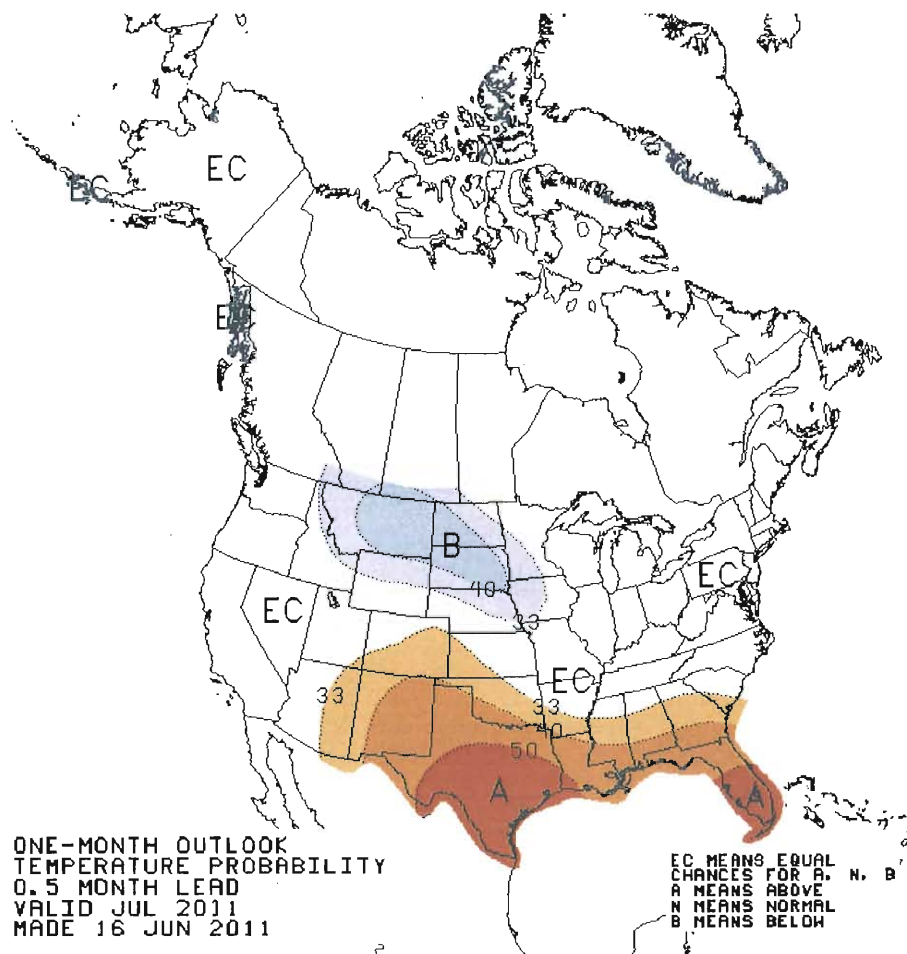
Current observed trends, along with forecasts from a majority of the ENSO models, indicate ENSO-neutral will continue through the Northern Hemisphere summer 2011. Thereafter, most models and all multi-model forecasts indicate ENSO-neutral to continue into the winter of 2011-12. However, model forecast skills are lower at longer lead times and the status of ENSO could change.



## July 2011 CPC Climate Outlooks

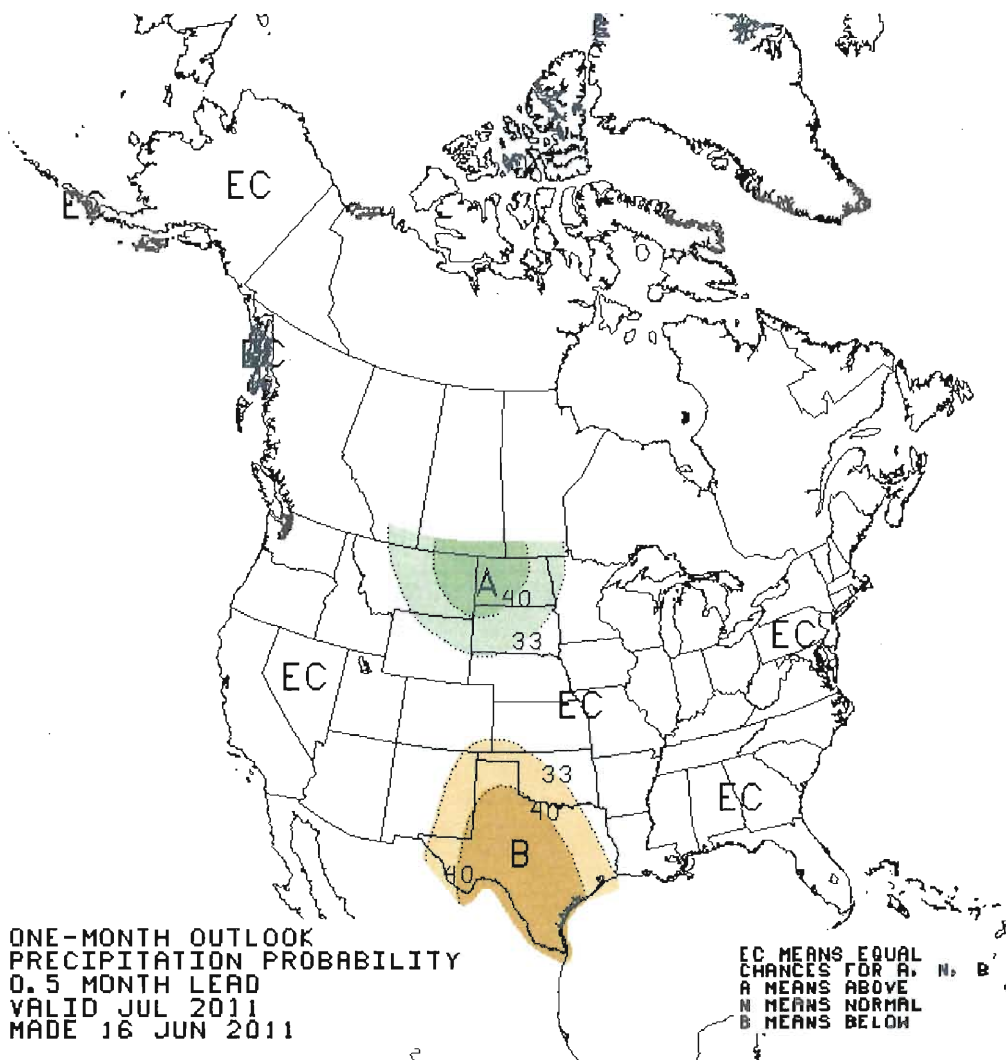
### Temperature:

Slightly enhanced chances of colder than normal temperatures are forecast across much of the northern half of Central Region, including northern Wyoming, the Dakotas, southwestern Minnesota, northeastern Nebraska and western Iowa during July. There is an enhanced chance of colder than normal conditions over far northeastern Wyoming, southwestern North Dakota and much of South Dakota. Across the southern tier of the region, slightly enhanced chances of warmer than normal conditions are expected for the southeastern half of Colorado and southwestern Kansas. Elsewhere across the region, indeterminate chances for above-normal, near-normal, and below-normal temperatures are forecast including the Great Lakes Region, middle Mississippi Valley region, eastern Kansas, southwest Nebraska, and south Wyoming.



### Precipitation:

Much of the Central Region has indeterminate chances for above-normal, near-normal, and below normal precipitation for July. However, across the Northern Plains including the Dakotas, far northwestern Minnesota, and northeastern Wyoming, slightly enhanced chances of above normal precipitation is forecast due to existing above normal soil moisture conditions. There are enhanced chances for above normal precipitation over the western two-thirds of North Dakota and far northwestern South Dakota. Slightly enhanced chances of drier than normal conditions are forecast for far southeastern Colorado and far southwestern Kansas.

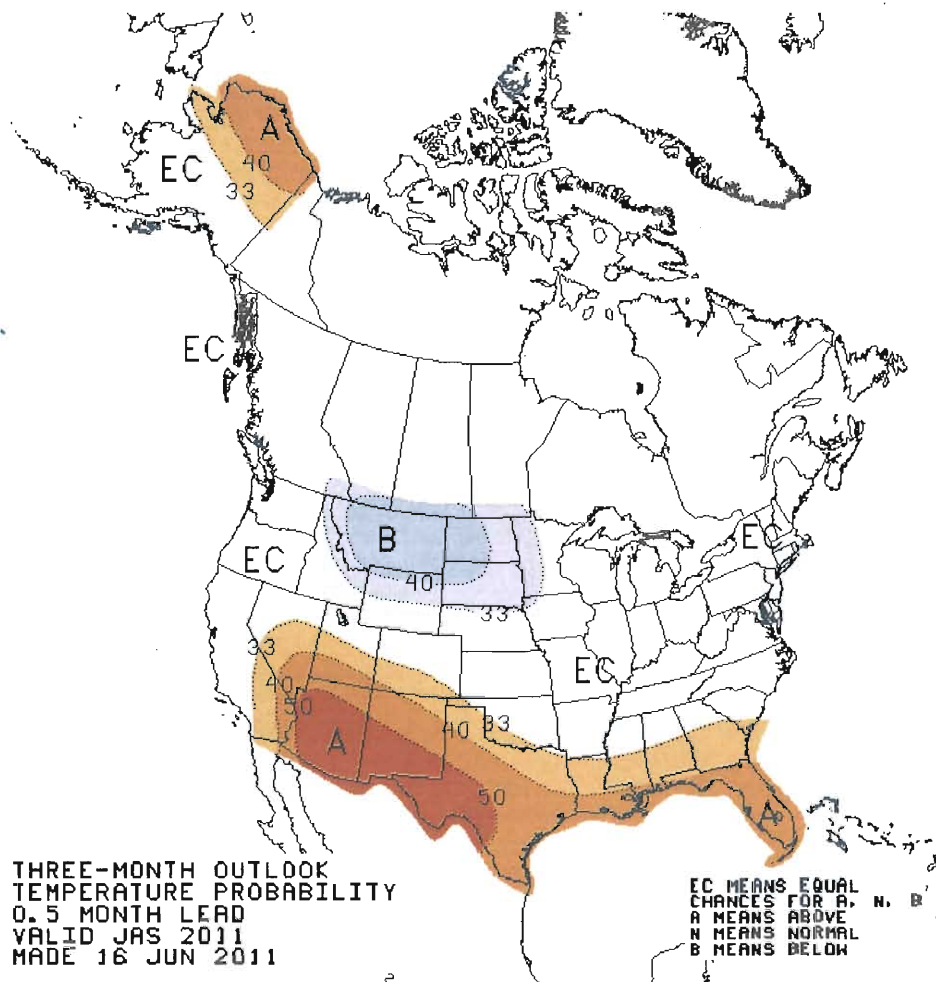




## 2011 (JAS) July-August-September CPC Outlooks

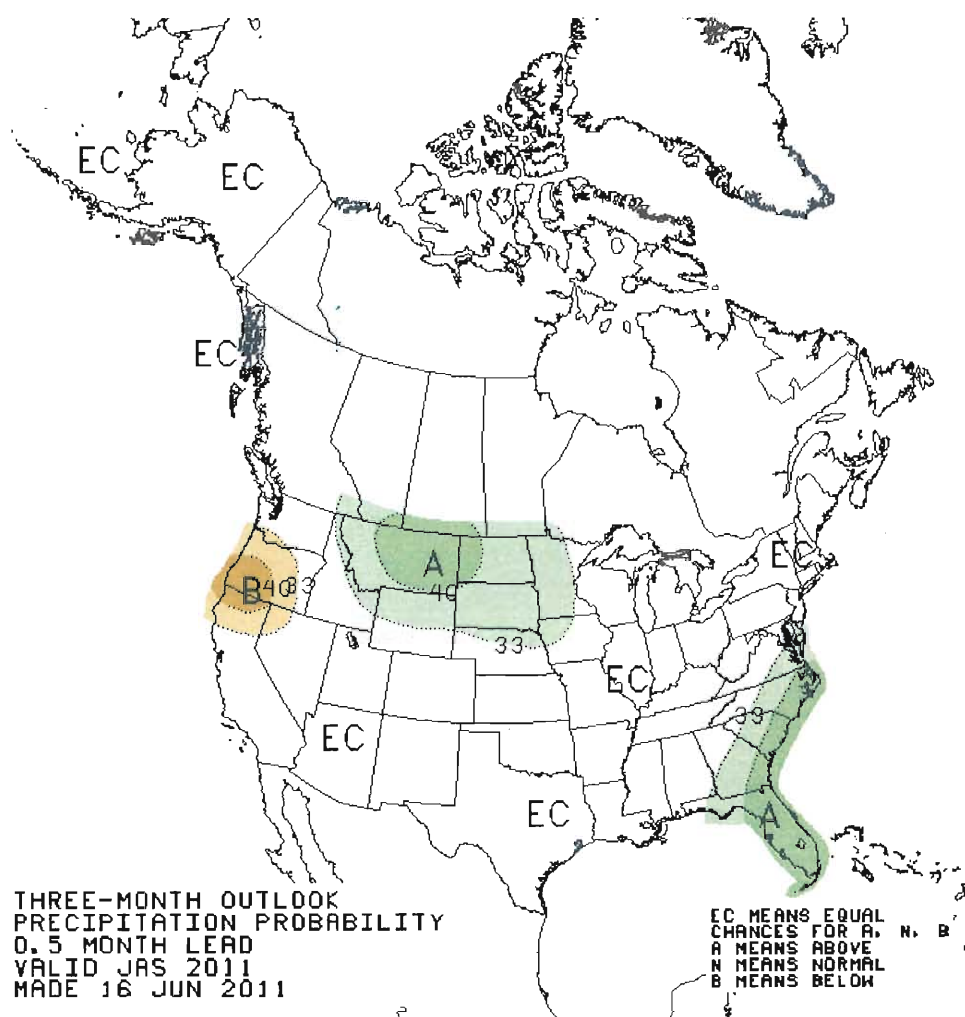
### Temperature:

Much of the Central Region has indeterminate chances of above-normal, near-normal, and below normal temperatures during July. Across the northern tier of the region, including the Dakotas, northern Wyoming, and western Minnesota, slightly enhanced chances of below normal temperatures are forecast over the next three months, which coincides with the area of slightly enhanced chances of above normal precipitation and preexisting wet soil moisture conditions. There is an enhanced chance of colder than normal temperatures over the western half of North Dakota, northwestern South Dakota, and far northern Wyoming. There is an area of slightly enhanced chances of warmer than normal temperatures across far southwestern Colorado.



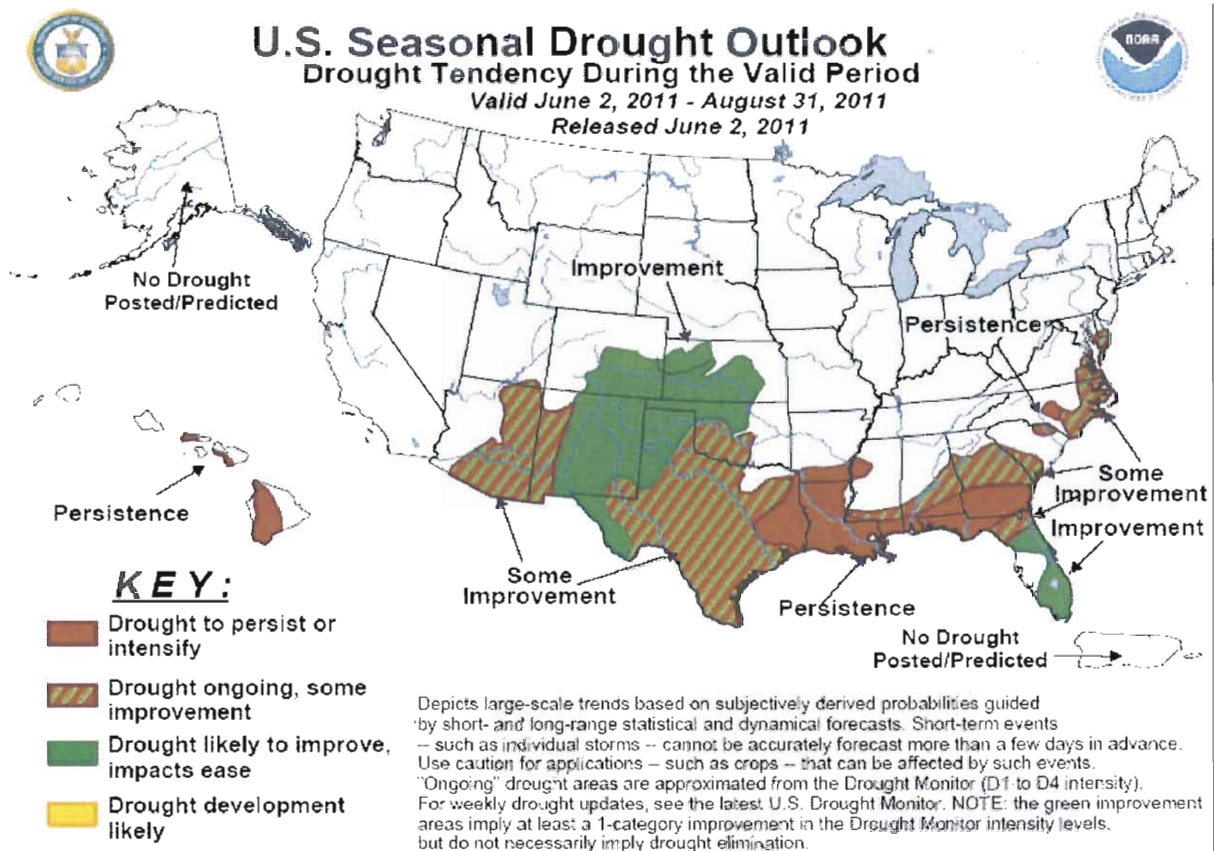
## Precipitation:

The three month outlook for JAS precipitation has changed significantly from the last issuance. Due to large soil moisture anomalies and wet conditions across the Northern Plains and Northern Rockies, the outlook points towards enhanced chances of wetter than normal conditions in the Upper Missouri River Basin. For the JAS period, slightly enhanced chances of above normal precipitation is forecast across the Northern Plains, northern Wyoming, eastern Minnesota, and northwestern Iowa. There is an enhanced chance of above normal precipitation over western North Dakota. Elsewhere across the region, indeterminate chances of above-normal, near-normal, and below-normal precipitation is forecast.



## Seasonal Drought Outlook

The most recent Seasonal Drought Outlook indicates the potential for improvement to drought conditions in Kansas and southeastern Colorado through the end of August.











## Seasonal Outlook Interpretation Guide

The National Weather Service Seasonal Climate Outlooks predict the probability of conditions being among the warmest/coldest or wettest/driest (Table 1) terciles of years compared to the period of 1971-2000.

The outlooks indicate probability of being in three specific categories in reference to the 30-year climatology from 1971-2000 (Table 2). Remember, CPC outlooks are made at the scale of climate megadivisions (Fig. 1).

Temperature		Precipitation	
Social Science	Climate Science	Social Science	Climate Science
Uncommonly Cold	Below Normal Tercile	Uncommonly Wet	Above Normal Tercile
Uncommonly Warm	Above Normal Tercile	Uncommonly Dry	Below Normal Tercile
Moderate (Neither Warm Nor Cold)	Normal Tercile	Moderate (Neither Wet nor Dry)	Normal Tercile

**Table 2...Climate Science Statistical Terminology (Terciles)**

Precip	Temp	Probability of Occurrence			Most likely category
		Above	Near	Below	
		80.0%-90.0%	16.7%-06.7%	03.3%	"Above"
		70.0%-80.0%	26.7%-16.7%	03.3%	"Above"
		60.0%-70.0%	33.3%-26.7%	06.7%-03.3%	"Above"
		50.0%-60.0%	33.3%	16.7%-06.7%	"Above"
		40.0%-50.0%	33.3%	26.7%-16.7%	"Above"
		33.3%-40.0%	33.3%	33.3%-26.7%	"Above"
		33.3%-30.0%	33.3%-40.0%	33.3%-30.0%	"Near Normal"
		30.0%-25.0%	40.0%-50.0%	30.0%-25.0%	"Near Normal"
		33.3%-26.7%	33.3%	33.3%-40.0%	"Below"
		26.7%-16.7%	33.3%	40.0%-50.0%	"Below"
		16.7%-06.7%	33.3%	50.0%-60.0%	"Below"
		06.7%-03.3%	33.3%-26.7%	60.0%-70.0%	"Below"
		03.3%	26.7%-16.7%	70.0%-80.0%	"Below"
		03.3%	16.7%-06.7%	80.0%-90.0%	"Below"
		33.3%	33.3%	33.3%	"Equal Chances"

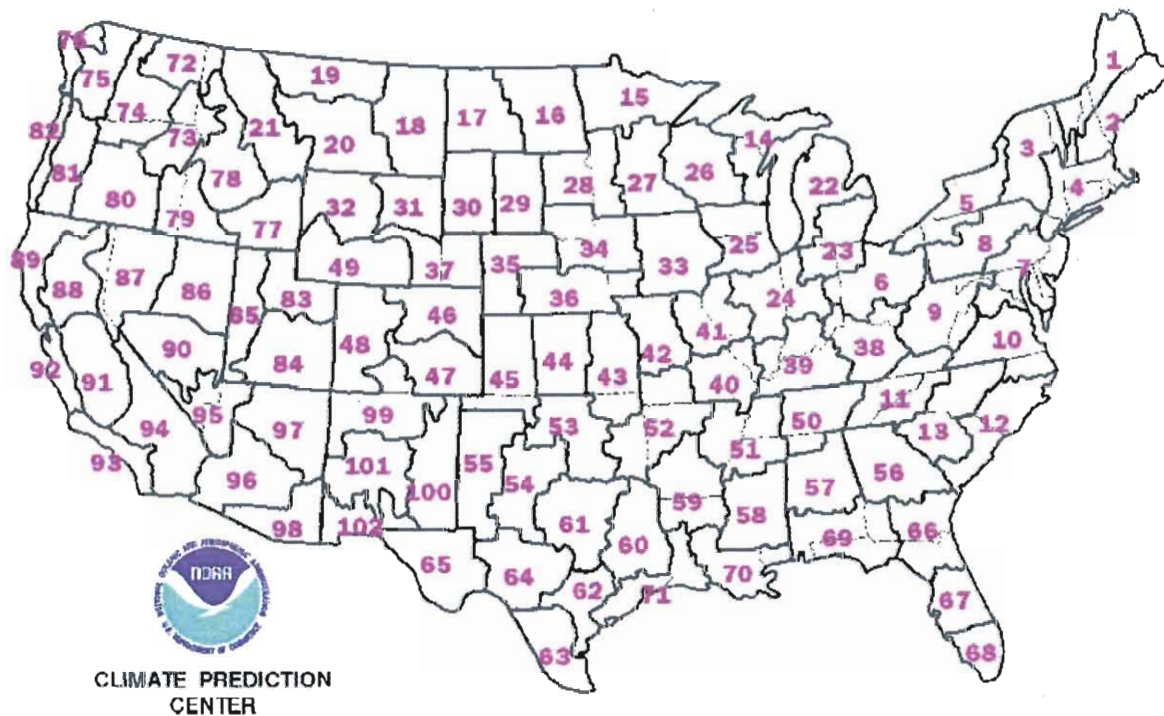


Figure 1...Mega Division Climate Forecast Map used by the Climate Prediction Center (CPC)

The following links show some of the ENSO composites that were used to make these forecasts.

**CPC ENSO Box & Whisker Analysis:**

[http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/box\\_whiskers/index.php](http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/box_whiskers/index.php)

**El Nino and La Niña-Related Winter Features over North America:**

[http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/EC\\_LNT\\_index.shtml](http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/EC_LNT_index.shtml)

**Winter Composites:**

[http://www.cpc.noaa.gov/products/analysis\\_monitoring/ensocycle/nawinter.shtml](http://www.cpc.noaa.gov/products/analysis_monitoring/ensocycle/nawinter.shtml)



[REDACTED] NWO

**From:** Farhat, Jody S NWD02  
**Sent:** Thursday, June 16, 2011 9:32 PM  
**To:** [REDACTED] NWD02  
**Subject:** Re: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments (UNCLASSIFIED)

Even the day 1 is ominous now. The evening update for garr shows inflows of 200 k for a couple days.

----- Original Message -----

**From:** [REDACTED] NWD02  
**To:** Farhat, Jody S NWD02  
**Sent:** Thu Jun 16 19:02:12 2011  
**Subject:** Re: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments (UNCLASSIFIED)

We were warned this was coming. Noreen is setting up a call for us to talk one-on-one with the HPC experts regarding their confidence in the ominous Day 4-5 QPF.

- [REDACTED]

[REDACTED]  
[REDACTED]  
402 [REDACTED] (Office)  
402 [REDACTED] (BB)

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----

**From:** Farhat, Jody S NWD02  
**To:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] S NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO

**Sent:** Thu Jun 16 18:54:51 2011  
**Subject:** FW: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

-----Original Message-----

**From:** Doug Kluck [<mailto:doug.kluck@noaa.gov>]  
**Sent:** Thursday, June 16, 2011 1:43 PM  
**To:** Sarah Palmer  
**Cc:** Bridget Radcliff; [Craig.Derickson@ne.usda.gov](mailto:Craig.Derickson@ne.usda.gov); Barnes, Verlon; [stas@wapa.gov](mailto:stas@wapa.gov); Hofmann, Anthony J COL NWK; Ruch, Robert J COL NWO; Blechinger, Erik T NWO; [REDACTED] NWK; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED] NWD; [REDACTED] NWD; [wayne.nelsonstastny@fws.gov](mailto:wayne.nelsonstastny@fws.gov); [rhonda.knudsen@bia.gov](mailto:rhonda.knudsen@bia.gov); [steven.mietz@nps.gov](mailto:steven.mietz@nps.gov); [lleake@usgs.gov](mailto:lleake@usgs.gov); [mrolsen@usbr.gov](mailto:mrolsen@usbr.gov); [depperly@usbr.gov](mailto:depperly@usbr.gov); [dfritz@usbr.gov](mailto:dfritz@usbr.gov); [Don.Simpson@blm.gov](mailto:Don.Simpson@blm.gov);

Tony Herrell@blm.gov; ssbrooks@blm.gov; theresa hanley@blm.gov; brian.yanchik@dot.gov;  
cothern.joe@epa.gov; berkley.jim@epa.gov

Subject: Re: MRBIR Planning Committee Call June 16 10.00-11.00 Central Attachments

Hi All,

Here is a summary of the monthly and seasonal aspects of the weather/climate in the future. The interpretation is that the chances for wetter and cooler conditions continuing in the upper Missouri basin for the next 3 months are enhanced. So not great news and I hope it's wrong.

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Doug

<<http://www1.gotomeeting.com/g2w/images/475700441/55976021197099447//embed.jpg>>

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Monthly Climate Call

Title: Monthly Climate Call

Date: Friday, June 17, 2011

Time: 10:00 AM - 11:00 AM CDT

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<<http://img.gotomeeting.com/g2mimages/1x1.gif>>

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Doug Kluck

Central Region Climate Services Director 7220 NW 101st Terrace Kansas City, MO

O: 816-994-3008

Classification: UNCLASSIFIED

Caveats: NONE



[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 17, 2011 5:59 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] M NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
M SAW  
**Cc:** [REDACTED] NWD02; [REDACTED] A NWD02; [REDACTED] Jr NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 17 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

fyi

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**17 June 2011**

As you just heard, the weather patterns across the upper basin have not moderated and in fact are expected to deteriorate over the next 5 days. We are carefully monitoring the situation and using the best information available to manage the remaining flood storage in the reservoir system. At this point, we have very little flexibility remaining. Despite record releases for more than 2 weeks now, the reservoir system has continued to gain storage nearly every day taking away our options.

Based on the current forecast, we have decided to transfer water from Oahe into Fort Randall. We will do that by increasing releases from Oahe and Big Bend to 160,000 cfs. For now, we will capture this additional volume in Fort Randall, and leave the releases at Fort Randall and Gavins Point at 150,000 cfs.

If the weather continues to deteriorate, we will lose our ability to manage the reservoirs with this type of intrasystem adjustments. At that point, we will be driven to reevaluate our regulation of the system and will likely be forced to increase releases from Fort Randall and Gavins Point.

Therefore, release schedule for the 6 dams are as follows:

- Fort Peck –Releases remain at 65,000 cfs today and will be held at that level through the weekend. We expect to reduce those releases back to 60,000 cfs next week as inflows drop off.
- Garrison – releases reached 150,000 cfs today and will remain at that level
- Oahe and Big Bend –Releases from both projects will be increased to 155,000 cfs tomorrow, and to 160,000 cfs on Sunday..
- Fort Randall – releases will remain at 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.
- Gavins Point – releases remain at 150,000 cfs.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 67%, down 52% from this year's peak

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 71%, down 48% from this year's peak

As of June 17

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 54% (-65%)

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 42% (-72%)

**NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 17, 2011 6:43 PM  
**To:** Williamson, Eileen L NWO; Oldham, Margaret NWO; Lazo, Carlos J SPK  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I would change the end of the first sentence to say "to 155,000 cfs on Saturday and to 160,000 cfs on Sunday." Just want to make it clear that it isn't immediately or all in one step.

Jody

-----Original Message-----

From: Williamson, Eileen L NWO  
Sent: Friday, June 17, 2011 6:12 PM  
To: Farhat, Jody S NWD02; Oldham, Margaret NWO; Lazo, Carlos J SPK  
Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I think something should go ahead and go on Social media now. It is in the press because of the Press Conference and people will see it on the news.  
Suggest the following:

From today's press conferece: "Despite record releases for more than 2 weeks, the reservoir system continues to gain storage nearly every day. Based on the current forecast, the Corps will transfer water from the Oahe reservoir into Fort Randall by increasing releases from Oahe and Big Bend to 160,000 cfs. For now, the additional volume will be stored at Fort Randall, with the releases at Fort Randall and Gavins Point remaining at 150,000 cfs."

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Friday, June 17, 2011 6:10 PM  
To: Williamson, Eileen L NWO  
Cc: Oldham, Margaret NWO  
Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Carlos is working on it. Will get something sent out this evening.

-----Original Message-----

From: Williamson, Eileen L NWO  
Sent: Friday, June 17, 2011 6:01 PM  
To: Farhat, Jody S NWD02  
Cc: Oldham, Margaret NWO  
Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

I presume a press release is following?

ELW

-----Original Message-----

From: Farhat, Jody S NWD02

Sent: Friday, June 17, 2011 5:59 PM

To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD;

[REDACTED] NWD; [REDACTED] NWD02; Love, Raymond E MAJ NWD; [REDACTED] J NWO; [REDACTED] NWO; [REDACTED] SAW

Cc: [REDACTED] R NWD02; [REDACTED] A NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] C NWD02; [REDACTED] C NWD02; [REDACTED] D NWD02; [REDACTED] S NWO; [REDACTED] NWD02

Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

fyi

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 18, 2011 11:06 AM  
**To:** Tom & Karla Waters  
**Subject:** RE: Gaingin Storage (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Tom - thanks for catching this! And you're right; we were talking about the same thing, but looking at it from different angles. My question for you is, which way makes most sense to the public. Is "storage" the water in the reservoirs or the empty space?

I'll be sure to clarify on tonight's call.

Thanks for your thoughtful input!

Jody

-----Original Message-----

From: Tom & Karla Waters [<mailto:waters4@ix.netcom.com>]  
Sent: Saturday, June 18, 2011 8:58 AM  
To: Farhat, Jody S NWD02  
Subject: Gaingin Storage

Hi Jody:

I've heard the filling of the reservoirs referred to in different ways. Yesterday, you said the reservoirs were "gaining storage". Then Colonel Ruch mentioned we were losing storage in the system. I'm pretty sure you both meant the releases were not keeping up with the inflow so the reservoirs are continuing to fill up faster than you are releasing water.

In my mind, when you say "gaining storage", it means you are increasing room in the reservoir for more water as you would be "out of storage" if the reservoirs were completely full. Then, gaining storage would indicate less water and more area to store water.

So, I know I'm splitting hairs here, but down the road as there begins to be less water in the reservoirs it might be easier to understand which direction we are moving if you could standardize the terms or provide an explanation for us.

Maybe it is just my brain is scrambled from all this. :-)

Take care,  
Tom

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 18, 2011 12:58 PM  
**To:** Ruch, Robert J COL NWO; Anderson, G Witt NWD; Blechinger, Erik T NWO; [REDACTED]  
**Subject:** RE: North Dakota Legislative Assembly (UNCLASSIFIED)  
**Attachments:** Todd Porter ND State Rep.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Sir - Here is a pdf of the signed response.

Jody

-----Original Message-----

**From:** Ruch, Robert J COL NWO  
**Sent:** Saturday, June 18, 2011 12:43 PM  
**To:** Anderson, G Witt NWD; Blechinger, Erik T NWO; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: North Dakota Legislative Assembly (UNCLASSIFIED)

I still don't think I have been provided a copy of the reply. Does anyone have it?

COL R

-----Original Message-----

**From:** Anderson, G Witt NWD  
**Sent:** Tuesday, June 14, 2011 8:41 AM  
**To:** Blechinger, Erik T NWO; [REDACTED] NWD  
**Cc:** Ruch, Robert J COL NWO; Farhat, Jody S NWD02  
**Subject:** FW: North Dakota Legislative Assembly (UNCLASSIFIED)  
**Importance:** High

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** Ruch, Robert J COL NWO  
**Sent:** Tuesday, June 14, 2011 6:34 AM  
**To:** Anderson, G Witt NWD  
**Subject:** FW: North Dakota Legislative Assembly (UNCLASSIFIED)

Witt,

Will this reply be going out today?

V/R,

COL Bob Ruch  
Commander  
Omaha District, USACE

(402) 995-2001  
<https://www.nwo.usace.army.mil/>

[REDACTED] do you and NWO have the action to close on bullet 4, so we can get this out?

Thanks,

Witt

-----Original Message-----

From: [REDACTED] HQ02  
Sent: Friday, June 10, 2011 10:48 AM  
To: Ruch, Robert J COL NWO; Thomas, Kimberly S NWO; [REDACTED] NWO  
Cc: [REDACTED] NWO; [REDACTED] NWO  
Subject: North Dakota Legislative Assembly (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Sir,

During the City update today Congressman Rick Berg presented me with the attached RFI regarding current Missouri River flooding. He wanted me to follow up on how long it would take to get a response to the RFI, I responded that I would contact you and provide a suspense. Also the Mayor of Bismarck turned over the facilitator responsibilities of the daily meeting to the Bismarck EOC Director. Therefore future USACE presence at the daily meeting is not required. However I did explain to the Director that we would be available if any questions or issues came about. Subject to your approval I will discontinue presenting at the City meeting and provide the City with daily input.

V/r

[REDACTED]  
[REDACTED]  
HQ-USACE Contingency Operations Directorate  
441 G Street NW  
Washington, DC 20314  
[REDACTED] Blackberry  
[REDACTED] Cell  
[REDACTED] [usace.army.mil](https://www.nwo.usace.army.mil/)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**CORPS OF ENGINEERS, NORTHWESTERN DIVISION**  
1616 CAPITOL AVENUE  
OMAHA NE 68102

June 15, 2011

Missouri River Basin Water Management Division

Mr. Todd Porter, State Representative  
North Dakota Legislative Assembly  
600 East Boulevard  
Bismarck, North Dakota 58505

Dear Representative Porter:

Thank you for your letter to Colonel Robert Ruch, Commander of the Omaha District Corps of Engineers, dated June 9, 2011, requesting information related to the current Missouri River flooding in Mandan/Bismarck, North Dakota. Regulation of the six mainstem dams on the Missouri River is handled by the Missouri River Basin Water Management Division, part of the Corps' Northwestern Division; therefore your letter was forwarded to me for response. A copy of this response will be forwarded to Colonel Ruch. Responses to your questions are provided below.

Question 1. Why did the United States Army Corps of Engineers stop releasing water at an increased rate around the middle of March 2011 and not increase releases from Garrison Dam until May 6, 2011, especially given the fact that the reservoir was full and the snow pack was at least 140 percent of normal?

Answer: Garrison Dam was operated during March and April to provide flood control for the cities of Bismarck and Mandan, and other communities along that reach of the river. Releases were reduced in mid-March when the ice went out of the river to provide channel capacity for the melt of the above normal plains snowpack. Mountain snowpack on April 1, 2011, was 112 percent of normal in the reach between Fort Peck and Garrison dams, and rose dramatically in the latter half of April reaching the peak level of 136 percent of normal on May 2. At no time, prior to the repeated rounds of heavy rain in the Upper Basin in May, which resulted in record single-month inflows into the reservoir system, did we have reason to expect record releases. Immediately after this rainfall event we began incrementally stepping up our releases in a controlled manner, while still allowing people downstream to prepare for a record runoff water year.

Question 2: What role, if any, did the snowpack in the upper portion of the Missouri River Basin play in the management of the water releases from the Garrison dam?

Answer: Snowpack on the plains and in the mountains was above average this year, however at no time prior to the heavy rains in May did we have reason to expect record releases. Our April 1, 2011 monthly study indicated peak releases from Garrison this summer in the range of 29,000 to 30,500 cfs. Those forecasted peak releases increased to 49,000 cfs by the May 1, 2011 study due to the increase in mountain snowpack as noted above, but were still well below historic levels.



Question 3. Given the fact that the reservoir system was full in 2010, why weren't the releases timed to prevent the catastrophic event that we are currently experiencing?

Answer: Releases from the Missouri River dams last fall and throughout the winter of 2010 were above normal in order to evacuate all of the 2010 flood waters prior to the 2011 runoff season. On January 28, 2011, the designed flood storage (16.3 Million Acre Feet) was available in the Missouri River reservoir system for this year's runoff season. At that point, and through the first of May, we had no reason to think we needed to increase releases beyond normal levels.

Question 4. Please provide any record regarding the decision to delay Garrison Dam releases and any internal memos/emails discussing the decision to delay the releases and slow the releases in 2011.

Answer: We will accommodate your requests for records, memos and emails concerning Garrison Dam releases, however, because it is a request for copies of documents, we will coordinate this request as if it were submitted pursuant to the Freedom of Information Act (FOIA), 5 USC Section 552. I have forwarded this request to Ms. Linda Burke in the Omaha District Office of Counsel, 402-995-2603, and she will immediately begin processing this portion of your records request in compliance with FOIA requirements. You can expect to receive documents within 20 business days.

Question 5. What part did the nesting season of the piping plover play in any water management decisions?

Answer: No operational decisions this year were driven by the needs of fish and wildlife or the Endangered Species Act – we have been operating solely for flood risk reduction. Summer adjustments to operations to minimize flooding of protected tern and plover eggs and chicks did not take place this year due to high flow conditions.

I understand the importance of the Missouri River to citizens in the State of North Dakota and appreciate your commitment to raise these issues on their behalf. If you or your staff has any questions, please feel free to contact me at (503) 808-3730 or Jody Farhat, Chief of Missouri River Basin Water Management Division at (402) 996-3840.

Sincerely,

A handwritten signature in dark ink, appearing to read "Witt Anderson".

Witt Anderson  
Director, Programs

STAFFING SHEET

CENWD-PDR

15 June 2011

SUBJECT: Response to North Dakota State Representative Todd Porter regarding flooding on the Missouri River.

DESIRED ACTION: Signature, date and dispatch original.

MFR: Letter sent in response to correspondence received regarding the flooding on the Missouri River. Response contained answers to specific questions regarding the regulation of Garrison dam in March and April 2011, the role of the snowpack in the upper basin, timing of releases to evacuate the 2011 flood waters, and the role of the nesting piping plovers in water management decisions. Letter also requested copies of documents concerning regulation of Garrison Dam. Request will be handled as a FOIA request and coordinated with Linda Burke of Omaha District OC.

Concur/Non-concur

Concur/Non-concur

Concur/Non-concur

15 June 2011  
Ms. Farhat/aap/3840  
AK 15 June 2011  
[REDACTED] CC-NWD

[REDACTED] CENWD-PD

CF:

CENWO-DE/[REDACTED]

CENWO-OC/[REDACTED]

CENWK-DE/[REDACTED]

MRJIC

**From:** [REDACTED] NWK  
**Sent:** Friday, June 17, 2011 10:45 PM  
**To:** [REDACTED] NWK; [REDACTED] NWO  
**Cc:** [REDACTED] NWK; [REDACTED] NWK; [REDACTED] NWO; [REDACTED]  
NWO; Blechinger, Erik T NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED]  
[REDACTED] NWK; [REDACTED] NWO; [REDACTED] NWK [REDACTED] NWO;  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWK; [REDACTED]  
D NWO; [REDACTED]; Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWK  
**Subject:** MRRP PgM Update -- week ending 17 June (UNCLASSIFIED)  
**Attachments:** MRRP Customer Survey Results 4-22-2011.xlsm

Classification: UNCLASSIFIED  
Caveats: NONE

General Information from the team this past week --

1 - Information shared by George Williams and Tim Welker: I want assure both of you we are working to ensure we capture vital physical, biological and chemical data related to this historic flood event. The team is exploring all options and alternatives to modify original sampling plans. With stated, we are also having to work around partner availability - so those secondary effects relate to the flood response. For example, SD is unable to continue any standard or contingency sampling due to their Emergency response efforts at Dakota Dunes- they know that stretch of river better than anyone and have been tasked with conducting search and rescue efforts and looking for large debris floating through at NIGHTS. They may get extended another 30-days (local request to keep them there as the barriers soak and fear of losing their expertise) and asked for our blessing; The state of NE has some safety and accessibility issues at this time; The upper basin teams (MT, Bismarck, Pierre) have some accessibility issues and safety concerns also. However, safety throughout the basin has been a paramount concern (especially dragging gears) with the floating and submerged LWD and high flows.

Just to add to this, the HAMP / WQ teams are working in concert with PSAP to focus on target areas: Baltimore Bend, Dalbey Bottoms, Wolf Creek, Plattsmouth, Kansas Bend, and Boyer. These will be sampled extensively during the next several months to better understand floodplain dynamics along the river.

2 - Casey Kruse shared the following notes:

A) High flows limiting pallid sturgeon, shallow water habitat and water quality data collection efforts. Working with recovery partners to implement contingency monitoring efforts to assess fish and river landscape response to flood flows. Working on getting Coast Guard permission/clearance to be on the river. Safety at forefront of all work.

B) International piping plover census currently being conducted. Least tern and piping plover habitat significantly reduced due to high water. Birds using created ESH in Lewis and Clark Lake.

C) Researchers from VPI are looking for Missouri River banded piping plovers throughout the Northern Great Plains to see where the birds moved to after being flooded from the river habitats.

D) CENWO-OD-TT was requested to conducted log removal duty from Lewis and Clark Lake. During the week of June 6-12 approximately 400 free floating logs were removed from the reservoir preventing them from potentially jamming in the spilling basin gates or the power house intake screens.

E) High water science opportunity priorities continue to be developed and staff is working hard to capture as much science during this opportunity as possible.

3 - Chance shared the following: Two levee boards (L-497 and L-476) are blaming their under seepage issues on the MRRP mitigation sites. We are working with Geotech on reviewing the situation to see what can be learned. Additionally, a site visit was performed on June 16 at 1330 to investigate a claim of erosion at the Fawn Island SWH site possibly threatening I-29. In addition to Corps personnel, the visit was attended by two adjacent landowners and a representative of the Iowa Farm Bureau. Additional information is being gathered.

FYI ...

1) Customer Survey results (see attached). We have not shared this information previously so wanted to get it out and then we'll have a discussion during the next ESC meeting. My thanks to both Jen Hengeler and Chris Horihan for compiling the data.

2) The Missouri River Recovery Program (MRRP) has added Adaptive Management (AM) pages to its website. You can access these new pages through the "BiOp/Mitigation Efforts" tab on the MRRP website (then look for "Adaptive Management" in the menu on the left), or you can access them directly at <<http://www.moriverrecovery.org/mrrp/f?p=136:17>>. These pages explain the MRRP adaptive management process and how it is being implemented. Topics include the AM process and guidance, AM strategies, models and monitoring, as well as links to pertinent documents.

Upcoming week ...

- 1) MRERP SCE Tech Team meeting - Kansas City;
- 2) CORE meeting - Kansas City;
- 3) MRRIC Leadership mgt - Kansas City;
- 4) Operation Mighty Mo continues

Schedule:

Mon - Fri -- Kansas City

As always, if you have any questions, please feel free to give me a shout!

██████████  
Senior Program Manager  
Missouri River Recovery Program  
US Army Corps of Engineers  
O: ██████████ (Kansas City)  
O: ██████████ (Omaha)  
C: ██████████  
██████████@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

	Category/Question	NWK
	<b>Attitude</b>	<b>Average</b>
1	The Corps of Engineers commitment to ensuring customer satisfaction	4.42
2	Listening to my needs	4.42
3	Reliability of the Corps and follow-through on commitments	4.32
4	Treating me as an important member of the team	4.63
5	Displaying flexibility in responding to my needs	4.33
	<b>Category Average</b>	<b>4.42</b>

	<b>Product and Services</b>	<b>Average</b>
6	Delivering quality products and services	4.22
7	Incorporating my requirements into the Corps products and services	4.24
	<b>Category Average</b>	<b>4.23</b>

	<b>Corps Staff</b>	<b>Average</b>
8	Responsiveness of Corps Staff	4.42
9	Technical competency of Corps staff	4.53
10	Managing projects and programs effectively.	4.32
	<b>Category Average</b>	<b>4.42</b>

	<b>Timely Service</b>	<b>Average</b>
11	Providing services in a timely manner	4.11
12	Meeting our schedules.	4.11
	<b>Category Average</b>	<b>4.11</b>

	<b>Cost and Affordability</b>	<b>Average</b>
13	Quality of financial information I receive.	4.20
14	Cost of Corps products and services.	3.85
15	Sensitivity to my budget constraints	4.06
	<b>Category Average</b>	<b>4.04</b>

	<b>Communication</b>	<b>Average</b>
16	Always keeping my well informed.	4.37
17	Quality of Corps of Engineers' documents.	4.26
18	Clarity and conciseness of Corps correspondence.	4.32
	<b>Category Average</b>	<b>4.32</b>

	<b>Problem Solving</b>	<b>Average</b>
19	Notifying me in a timely manner if a problem occurs.	4.42
20	Addressing problems in a timely manner.	4.11
21	Resolving my concerns.	4.26
	<b>Category Average</b>	<b>4.26</b>

	<b>Overall Satisfaction</b>	<b>Average</b>
22	My overall satisfaction with Corps products and services.	4.42
23	I would recommend the Corps of Engineers	4.33
24	The Corps of Engineers would be my choice for future projects and services.	4.24

	<b>Category Average</b>	<b>4.33</b>
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<b>Overall Average</b>	<b>4.29</b>
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NWO	Overall
Average	Average
3.96	4.19
4.04	4.23
4.08	4.20
4.12	4.37
3.75	4.04
<b>3.99</b>	<b>4.21</b>

Average	Average
4.08	4.15
3.76	4.00
<b>3.92</b>	<b>4.08</b>

Average	Average
4.00	4.21
4.31	4.42
3.84	4.08
<b>4.05</b>	<b>4.24</b>

Average	Average
3.96	4.03
3.92	4.01
<b>3.94</b>	<b>4.02</b>

Average	Average
3.70	3.95
3.14	3.49
3.16	3.61
<b>3.33</b>	<b>3.68</b>

Average	Average
4.04	4.20
4.08	4.17
4.04	4.18
<b>4.05</b>	<b>4.18</b>

Average	Average
3.86	4.14
3.71	3.91
3.54	3.90
<b>3.70</b>	<b>3.98</b>

Average	Average
4.12	4.27
3.92	4.13
3.90	4.07

3.98	4.15
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3.88	4.08
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NWO

From: [REDACTED] NWD02  
Sent: Friday, June 17, 2011 10:40 PM  
To: Farhat, Jody S NWD02; [REDACTED] NWD02; [REDACTED] NWD02  
Subject: Fw: Middle Dakota Tribs Contingency Forecast

Much better news.

[REDACTED]  
[REDACTED]  
MRBWM Res Reg Team Lead  
402.996.3870 (Office)  
402.779.1444 (BB)

-----  
Message sent via my BlackBerry Wireless Device

----- Original Message -----  
From: [ldm@ls1-krf.krf.noaa.gov](mailto:ldm@ls1-krf.krf.noaa.gov) <[ldm@ls1-krf.krf.noaa.gov](mailto:ldm@ls1-krf.krf.noaa.gov)>  
To: [REDACTED] NWD02  
Sent: Fri Jun 17 20:20:02 2011  
Subject: Middle Dakota Tribs Contingency Forecast

ZCZC MKCCRFMDT BIS,ABR,UNR,BCQ  
TTAA00 KKRF DDHMM  
CRFMDT

RIVER FORECAST  
NWS MISSOURI BASIN RIVER FORECAST CENTER PLEASANT HILL MO 0316Z SAT JUN 18 2011

:  
: \*\*\* FOR INTERNAL NWS USE ONLY ... NOT FOR PUBLIC RELEASE \*\*\*

: FORECAST GROUP IS MIDDAK\_RES

: ==> This forecast includes projected snowmelt due to <==  
: ==> forecasted daily max/min temperatures for the next 14 days <==

: \*\*\*\*\*  
: INCORPORATES 6/17/2011 USACE RESERVOIR REGULATION FORECAST  
: \*\*\*\*\*

: \*\*\*\*\*  
: \*\*\* CONTINGENCY FORECAST \*\*\*  
: \*\*\*  
: \*\*\* WITH 120 HOURS OF QPF \*\*\*  
: \*\*\*\*\*

:  
:  
:  
:

:OAHE RES SD - MISSOURI RIVER      RESERVOIR INFLOW FORECAST

:  
:  
:

:LATEST ESTIMATED DISCHARGE 158.06 KCFS AT 0000Z ON 0618

.ER PIES2      20110618 Z DC201106180316/DH06/QIIC1/DIH6

:QPF FCST      12Z      18Z      0Z      6Z

.E1 :0617:      ::      ::      /      157.10

.E2 :0618:/      155.70/      154.59/      153.95/      153.77

.E3 :0619:/      153.84/      154.25/      154.80/      155.52

.E4 :0620:/      156.21/      156.77/      157.31/      157.91

.E5 :0621:/      158.51/      159.13/      160.14/      162.14

.E6 :0622:/      165.42/      169.59/      174.03/      178.35

.E7 :0623:/      182.15/      185.21/      187.87/      190.52

.E8 :0624:/      192.99/      194.90/      196.12/      196.70

.E9 :0625:/      196.77/      196.46/      195.87/      194.96

.E10 :0626:/      193.71/      192.20/      190.51/      188.73

.E11 :0627:/      186.85/      184.95/      183.09/      181.24

.E12 :0628:/      179.28/      177.23/      175.20/      173.24

.E13 :0629:/      171.42/      169.74/      168.14/      166.63

.E14 :0630:/      165.26/      164.02/      162.91/      161.94

.E15 :0701:/      161.06/      160.27/      159.56

:\*\*\*\*\*

:COMMENT

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:wao

:...END of MESSAGE...

**NWO**

**From:** McMahon, John R BG NWD  
**Sent:** Friday, June 17, 2011 8:44 PM  
**To:** Temple, Bo M MG HQ02; Grisoli, William T MG HQ02; [REDACTED] HQ02; [REDACTED] HQ02  
**Cc:** [REDACTED] NWD; [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; Farhat, Jody S NWD02  
**Subject:** Fw: Releases from Oahe, Big Bend to increase  
**Attachments:** NR 160 increase.pdf

Sir:  
Per conversation/VM message earlier today, we announced the intra-reservoir transfer/release increases from Oahe down to Ft Randall; we are not planning to increase releases out of Gavins beyond 150K yet; answered many media queries at our 1700 Daily Stakeholder Call. Spoke to SD Gov Dugaard and will call other Govs and Senators tomorrow to keep them apprised of our thinking. We're watching the developing weather closely and may adjust downward if it doesn't materialize. CTM.  
Vr/John

---

**From:** U.S. Army Corps of Engineers <[kevin.m.wingert@usace.army.mil](mailto:kevin.m.wingert@usace.army.mil)>  
**To:** McMahon, John R BG NWD  
**Sent:** Fri Jun 17 17:41:51 2011  
**Subject:** Releases from Oahe, Big Bend to increase

<<http://us.vocuspr.com/Publish/520028/vcsPRAsset 520028 348656 c5220867-6ce9-45c0-83c2-dfd9e54e58a1 0 USACE LOGO small.jpg>>

BUILDING STRONG®

NEWS RELEASE

For Immediate Release: June 17, 2011

Contact: Missouri River Joint Information Center  
402-996-3877  
[mrjic@usace.army.mil](mailto:mrjic@usace.army.mil)

Releases from Oahe, Big Bend to increase

Omaha, Neb. - Based on the current National Weather Service forecast, the U.S. Army Corps of Engineers will increase releases from Oahe and Big Bend Dams. Both dams will increase releases from 150,000 cfs to 155,000 cfs on June 18 and then to 160,000 cfs on June 19.

"We are transferring flood storage from Oahe and Big Bend to Fort Randall, which has more storage available at this time," said Jody Farhat, chief of Water Management, U.S. Army Corps of Engineers, Northwestern Division. "The amount of rain has nearly filled the reservoirs, doing away with most of the flexibility we had built into our operations for this year," said Farhat.

The additional volume will be stored at Fort Randall, with the releases at Fort Randall and Gavins Point remaining at 150,000 cfs. Flows from the Fort Peck and Garrison dams will remain the same, based on current forecast, at 65,000 cfs and 150,000 cfs, respectively.

"Moving water out of the reservoirs is essential to balance the remaining flood storage in the reservoirs," said Brig. Gen. John McMahon, commander of the Northwestern Division of the Army Corps of Engineers.

Even with the increase, the temporary levees along the river at both cities will still have sufficient freeboard.

For general questions regarding our flood response information efforts, please call (402) 996-3877 or e-mail us at [MRJIC@usace.army.mil](mailto:MRJIC@usace.army.mil).

Please follow us on Facebook ([www.facebook.com/OmahaUSACE](http://www.facebook.com/OmahaUSACE)), ([www.facebook.com/OperationMightyMo](http://www.facebook.com/OperationMightyMo)), Twitter ([www.twitter.com/OmahaUSACE](http://www.twitter.com/OmahaUSACE)), YouTube ([www.youtube.com](http://www.youtube.com)), and FLICKR ([www.flickr.com](http://www.flickr.com)) for the latest updates regarding our flood response operations.

You can also find flood inundation maps and local emergency management contact information on our social media sites as well as our district Web site at <http://www.nwo.usace.army.mil>.

View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at: <http://www.nwd-mr.usace.army.mil/rcc>  
<<http://USACEARMY.pr-optout.com/Url.aspx?520028x1675880x-532088>> .

###

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U.S. ARMY CORPS OF ENGINEERS - OMAHA DISTRICT

1616 Capitol Ave., Ste. 9000

<http://www.nwo.usace.army.mil/> <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1675879x-1052286>>

Find us on Facebook at [facebook.com/OmahaUSACE](http://facebook.com/OmahaUSACE) <<http://USACEARMY.pr-optout.com/Url.aspx?520028x1675878x-1572484>> and on Twitter at [twitter.com/OmahaUSACE](http://twitter.com/OmahaUSACE)  
<<http://USACEARMY.pr-optout.com/Url.aspx?520028x1675877x-2092682>>

<<http://us.vocuspr.com/Url.aspx?520028x333145x761158>> Like us on Facebook  
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<<http://USACEARMY.pr-optout.com/Url.aspx?520028x1675875x-937175>>

<<http://us.vocuspr.com/Url.aspx?520028x1675881x-11890>>

If you would rather not receive future communications from U.S. Army Corps of Engineers, let us know by clicking here. <<http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x318184x3x1875280x24000x6&Email=John.R.McMahon%40usace.army.mil>>

U.S. Army Corps of Engineers, 167 North Main Street, Memphis, TN 38103 United States



U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

# NEWS RELEASE

For Immediate Release: June 17, 2011

Contact: Missouri River Joint Information Center

402-996-3877

[mrjic@usace.army.mil](mailto:mrjic@usace.army.mil)

## Corps increases releases to gain storage in two Missouri River reservoirs

**Omaha, Neb.** – Based on the current National Weather Service forecast, the U.S. Army Corps of Engineers will increase releases from Oahe and Big Bend Dams. Both dams will increase releases from 150,000 cfs to 155,000 cfs on June 18 and then to 160,000 cfs on June 19.

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Please follow us on Facebook ([www.facebook.com/OmahaUSACE](http://www.facebook.com/OmahaUSACE)), ([www.facebook.com/OperationMightyMo](http://www.facebook.com/OperationMightyMo)), Twitter ([www.twitter.com/OmahaUSACE](http://www.twitter.com/OmahaUSACE)), YouTube ([www.youtube.com](http://www.youtube.com)), and FLICKR ([www.flickr.com](http://www.flickr.com)) for the latest updates regarding our flood response operations.

You can also find flood inundation maps and local emergency management contact information on our social media sites as well as our district Web site at <http://www.nwo.usace.army.mil>.

View daily and forecasted reservoir and river information on the Water Management section of the

Northwestern Division homepage at: <http://www.nwd-mr.usace.army.mil/rcc>.

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U.S. Army Corps of Engineers – Omaha District 1616 Capitol Ave., Omaha, Neb. 68102

<http://www.nwo.usace.army.mil/>

Find us on Facebook at [facebook.com/OmahaUSACE](https://www.facebook.com/OmahaUSACE) and on Twitter at [twitter.com/OmahaUSACE](https://twitter.com/OmahaUSACE)

**NWO**

---

**From:** Williamson, Eileen L NWO  
**Sent:** Friday, June 17, 2011 6:44 PM  
**To:** Farhat, Jody S NWD02; Oldham, Margaret NWO; [REDACTED] SPK  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

OK - The word is already out.

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 17, 2011 6:43 PM  
**To:** Williamson, Eileen L NWO; Oldham, Margaret NWO; [REDACTED] SPK  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I would change the end of the first sentence to say "to 155,000 cfs on Saturday and to 160,000 cfs on Sunday." Just want to make it clear that it isn't immediately or all in one step.

Jody

-----Original Message-----

**From:** Williamson, Eileen L NWO  
**Sent:** Friday, June 17, 2011 6:12 PM  
**To:** Farhat, Jody S NWD02; Oldham, Margaret NWO; [REDACTED] SPK  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I think something should go ahead and go on Social media now. It is in the press because of the Press Conference and people will see it on the news.  
Suggest the following:

From today's press conferece: "Despite record releases for more than 2 weeks, the reservoir system continues to gain storage nearly every day. Based on the current forecast, the Corps will transfer water from the Oahe reservoir into Fort Randall by increasing releases from Oahe and Big Bend to 160,000 cfs. For now, the additional volume will be stored at Fort Randall, with the releases at Fort Randall and Gavins Point remaining at 150,000 cfs."

-----Original Message-----

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 17, 2011 6:10 PM  
**To:** Williamson, Eileen L NWO  
**Cc:** Oldham, Margaret NWO  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Carlos is working on it. Will get something sent out this evening.

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From: Williamson, Eileen L NWO  
Sent: Friday, June 17, 2011 6:01 PM  
To: Farhat, Jody S NWD02  
Cc: Oldham, Margaret NWO  
Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I presume a press release is following?  
ELW

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Friday, June 17, 2011 5:59 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED], [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] SAW  
Cc: [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] Joel D NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] S NWO; [REDACTED] NWD02  
Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

fyi

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



[REDACTED]

**From:** Williamson, Eileen L NWO  
**Sent:** Friday, June 17, 2011 6:12 PM  
**To:** Farhat, Jody S NWD02; Oldham, Margaret NWO; [REDACTED] SPK  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
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From: Farhat, Jody S NWD02  
Sent: Friday, June 17, 2011 6:10 PM  
To: Williamson, Eileen L NWO  
Cc: Oldham, Margaret NWO  
Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

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To: Farhat, Jody S NWD02  
Cc: Oldham, Margaret NWO  
Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I presume a press release is following?  
ELW

-----Original Message-----

From: Farhat, Jody S NWD02  
Sent: Friday, June 17, 2011 5:59 PM  
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED]  
NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED]  
[REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique  
L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD;  
[REDACTED] NWD; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] NWO;  
[REDACTED] NWO; [REDACTED] SAW

Cc: [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] Jr NWO; [REDACTED],  
[REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWD02

Subject: RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

fyi

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Kevin Garvin [cedarem@hartel.net]  
**Sent:** Friday, June 17, 2011 6:08 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Gavin's Point Dam

Jody,

In listening to the call today I understand that there is the probability that releases from Gavin's may need to increase down the road if mother nature keeps up the moisture. We have kind of figured from day one that may become necessary.

I know this is like hitting a moving target, but for our Emergency Planning purposes what ranges might be possible? What ranges do we need to plan for?

Also, will we be able to get new inundation information that covers the range far enough in advance so that we can get word out to the affected citizens before the media does?

The USACE teams working this event have a tough job that few understand. Keep up the good work.

Thanks

Kevin Garvin

Director of Emergency Management

Cedar County Nebraska

402-254-6862 Office

402-640-4650 Cell

**From:** Williamson, Eileen L NWO  
**Sent:** Friday, June 17, 2011 6:01 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** Oldham, Margaret NWO  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)

[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Friday, June 17, 2011 5:59 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED]  
[REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T  
NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen  
L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED]  
NWD; [REDACTED] NWD; [REDACTED] a NWD; [REDACTED] NWD02; Love,  
Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] SAW  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO;  
[REDACTED] D NWD02; [REDACTED] NWD02; [REDACTED] NWD02;  
[REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 17 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 17 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

fyi

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**17 June 2011**

As you just heard, the weather patterns across the upper basin have not moderated and in fact are expected to deteriorate over the next 5 days. We are carefully monitoring the situation and using the best information available to manage the remaining flood storage in the reservoir system. At this point, we have very little flexibility remaining. Despite record releases for more than 2 weeks now, the reservoir system has continued to gain storage nearly every day taking away our options.

Based on the current forecast, we have decided to transfer water from Oahe into Fort Randall. We will do that by increasing releases from Oahe and Big Bend to 160,000 cfs. For now, we will capture this additional volume in Fort Randall, and leave the releases at Fort Randall and Gavins Point at 150,000 cfs.

If the weather continues to deteriorate, we will lose our ability to manage the reservoirs with this type of intrasystem adjustments. At that point, we will be driven to reevaluate our regulation of the system and will likely be forced to increase releases from Fort Randall and Gavins Point.

Therefore, release schedule for the 6 dams are as follows:

- Fort Peck –Releases remain at 65,000 cfs today and will be held at that level through the weekend. We expect to reduce those releases back to 60,000 cfs next week as inflows drop off.
- Garrison – releases reached 150,000 cfs today and will remain at that level
- Oahe and Big Bend –Releases from both projects will be increased to 155,000 cfs tomorrow, and to 160,000 cfs on Sunday..
- Fort Randall – releases will remain at 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.
- Gavins Point – releases remain at 150,000 cfs.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 67%, down 52% from this year's peak

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 71%, down 48% from this year's peak

As of June 17

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 54% (-65%)

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 42% (-72%)

**NWO**

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**From:** NWD-MR, RCC-MAIL NWD02  
**Sent:** Friday, June 17, 2011 5:32 PM  
**To:** DLL-CENWO-FP-Operator; DLL-CENWO-GA-Operator; DLL-CENWO-OA-Operator; DLL-CENWO-BB-Operator; DLL-CENWO-GP-Operator; DLL-CENWO-FR-Operator  
**Cc:** Farhat, Jody S NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; NWD-MR, RCC-MAIL NWD02; [REDACTED] NWD02; 'WAPA (ugpmarketer@wapa.gov)'; DLL-NWK-ED-HC; DLL-CENWO-ED-HA; CENWO-EOC NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] C NWD02; [REDACTED] NWO; [REDACTED] NWD-OMAHA  
**Subject:** Week-end Worker (Latka) (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

For your information, the scheduled worker on duty for the Water Management Division for 17-18 June will be Doug Latka (402-996-3863). If he cannot be reached at his office phone number, then the cell phone is 402-203-4066.

In addition, if you need assistance you can contact [REDACTED] or [REDACTED]. Additional staff: Jody Farhat ([REDACTED]), [REDACTED] ([REDACTED]), [REDACTED] ([REDACTED]), and [REDACTED] ([REDACTED]).

Farhat

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** Thimsen, Anne [Anne.Thimsen@mail.house.gov]  
**Sent:** Friday, June 17, 2011 4:19 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Follow up data from Corps of Engineers (UNCLASSIFIED)

Jody,

Thank you very much for all the information. It is really helpful.

I will let you know if we need any additional information.

Have a good weekend (if you can!).

-Anne

-----Original Message-----

**From:** Farhat, Jody S NWD02 [<mailto:Jody.S.Farhat@usace.army.mil>]  
**Sent:** Thursday, June 16, 2011 1:47 PM  
**To:** Thimsen, Anne  
**Cc:** McMahon, John R BG NWD; [REDACTED] NWD  
**Subject:** Follow up data from Corps of Engineers (UNCLASSIFIED)

**Classification:** UNCLASSIFIED  
**Caveats:** NONE

Anne,

I've posted the information we discussed yesterday on our public ftp site. Included are the Excel version of the project statistics, a PowerPoint version of the flood presentation posted on our website, and a PowerPoint containing plots of pool elevations and total system storage for 4 of the 6 mainstem reservoirs for the past 15 years. Big Bend and Gavins Point are essentially flow-through projects with very little flood control storage, so I did not include them in the presentation. They are operated in the same narrow band every year regardless of runoff conditions.

The link to the ftp site is: <ftp://ftp.usace.army.mil/pub/nwd/Noem%20Data/>

You also requested information on precipitation, so I've included links to some of the National Weather Service websites we use for historical information.

Jan-May 2011 precipitation - note Eastern Montana was "record wettest":  
<http://www.ncdc.noaa.gov/sotc/service/national/Divisionalprank/201101-201105.gif>

This one covers the May 17-Jun 15 wet period:  
[http://www.hprcc.unl.edu/maps/current/index.php?action=update\\_product&product=PNorm](http://www.hprcc.unl.edu/maps/current/index.php?action=update_product&product=PNorm)

Here are the latest % normal pcpn maps from HPRCC:  
<http://www.hprcc.unl.edu/products/maps/acis/Last1mPNormUS.png>  
<http://www.hprcc.unl.edu/products/maps/acis/Last3mPNormUS.png>  
<http://www.hprcc.unl.edu/products/maps/acis/Last12mPNormUS.png>



One-month precipitation departures

[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/1-month-archive.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/1-month-archive.shtml)

Three-month precipitation departures

[http://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/regional\\_monitoring/3-month-archive.shtml](http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/3-month-archive.shtml)

Let me know if I can be of any further assistance.

Regards,  
Jody

Jody Farhat, P.E.  
Chief, Missouri River Basin Water Management

[jody.s.farhat@usace.army.mil](mailto:jody.s.farhat@usace.army.mil)  
Office: 402-996-3840

Classification: UNCLASSIFIED  
Caveats: NONE

**[REDACTED] NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Friday, June 17, 2011 4:18 PM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWO  
**Subject:** Snowmelt Streamgages (UNCLASSIFIED)  
**Attachments:** snowmelt.pdf

Classification: UNCLASSIFIED

Caveats: NONE

Jody,

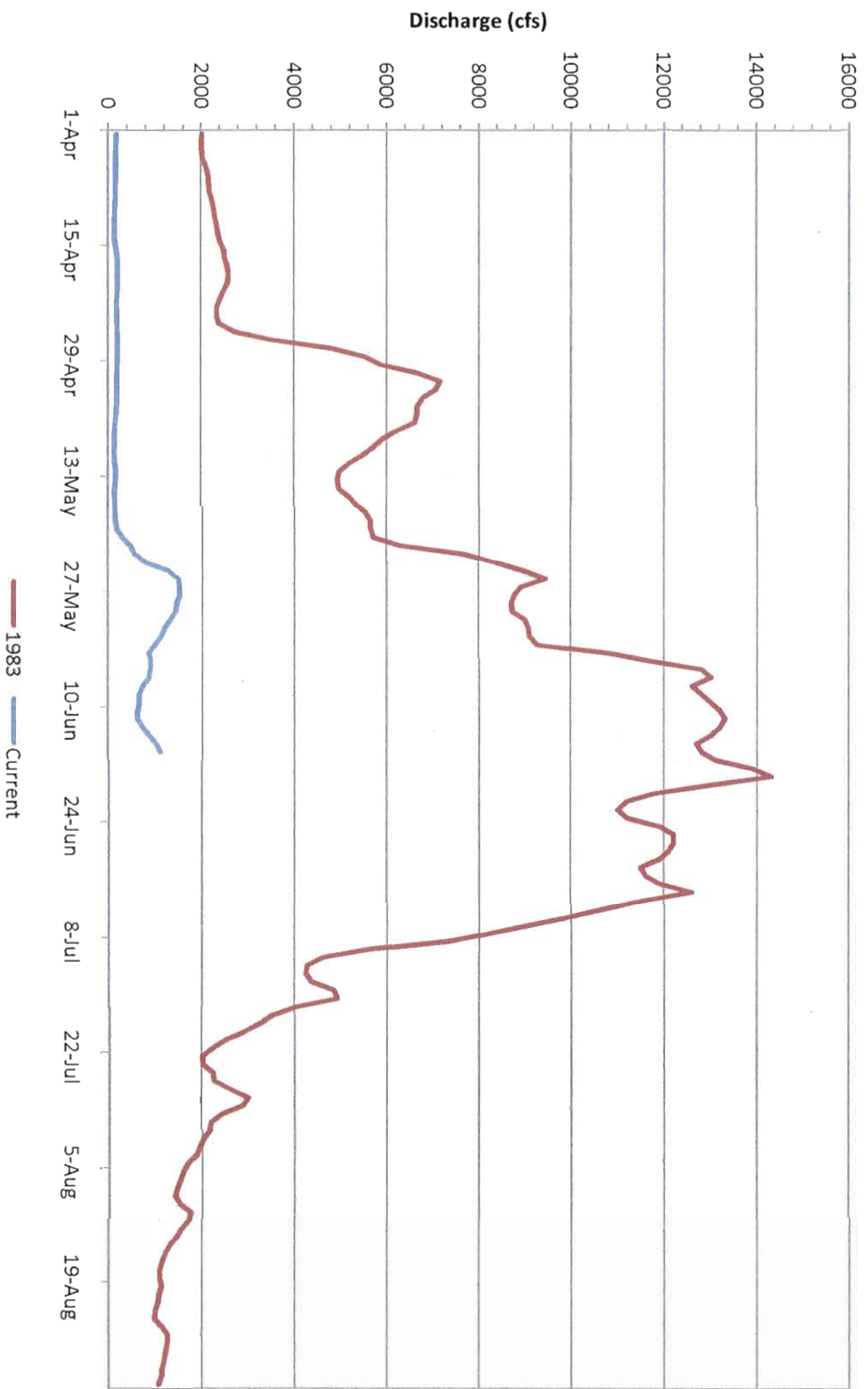
Col. Ruch asked me to forward this on to you in case you'd like to utilize this information for anything. I will be posting these hydrographs up on our internal website, but as of yet I am not planning on creating a link to them unless they are going to be something we use often. If you are interested in using this and would like any other gages added to our list please let me know.

Thanks,

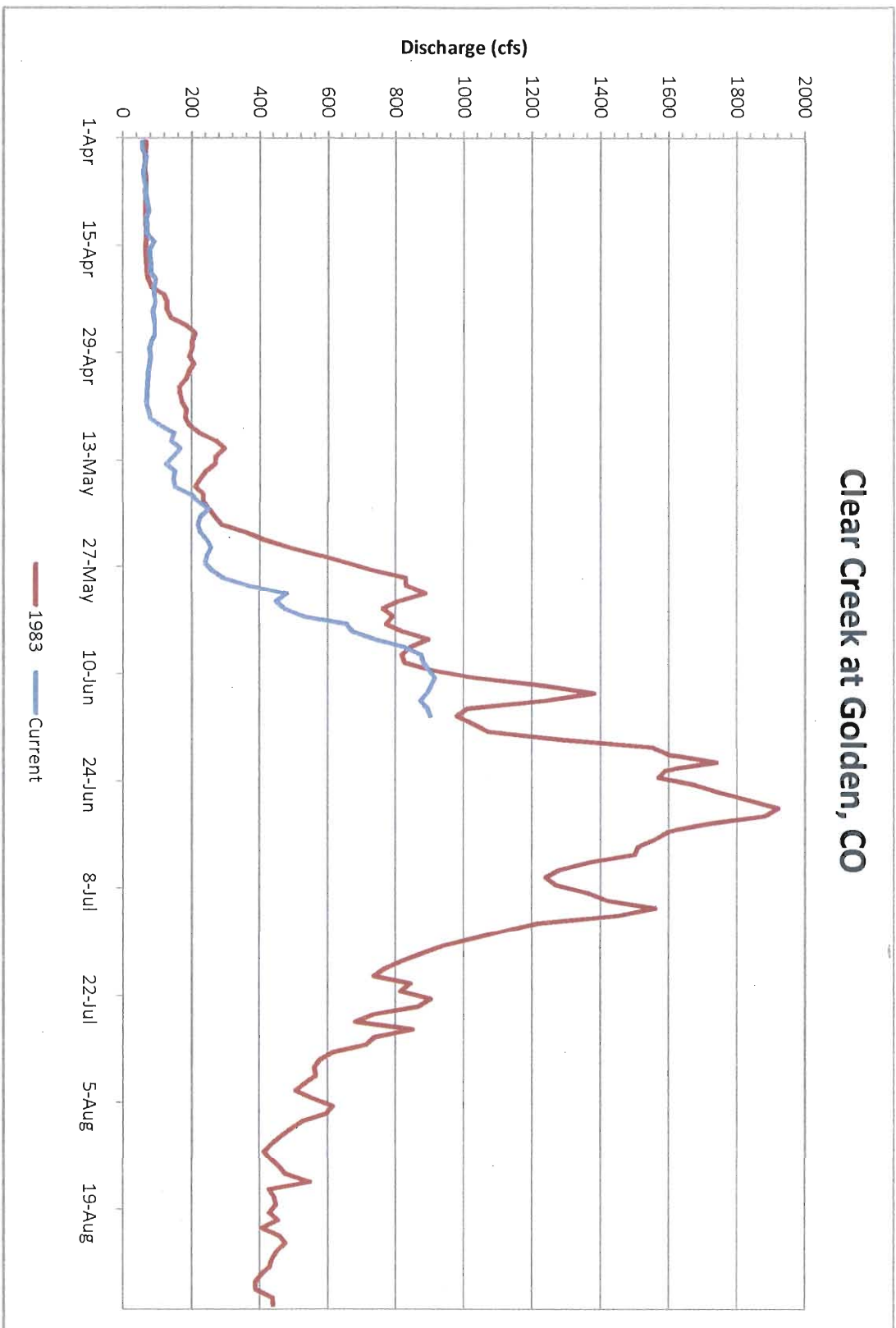
**[REDACTED]**  
Classification: UNCLASSIFIED

Caveats: NONE

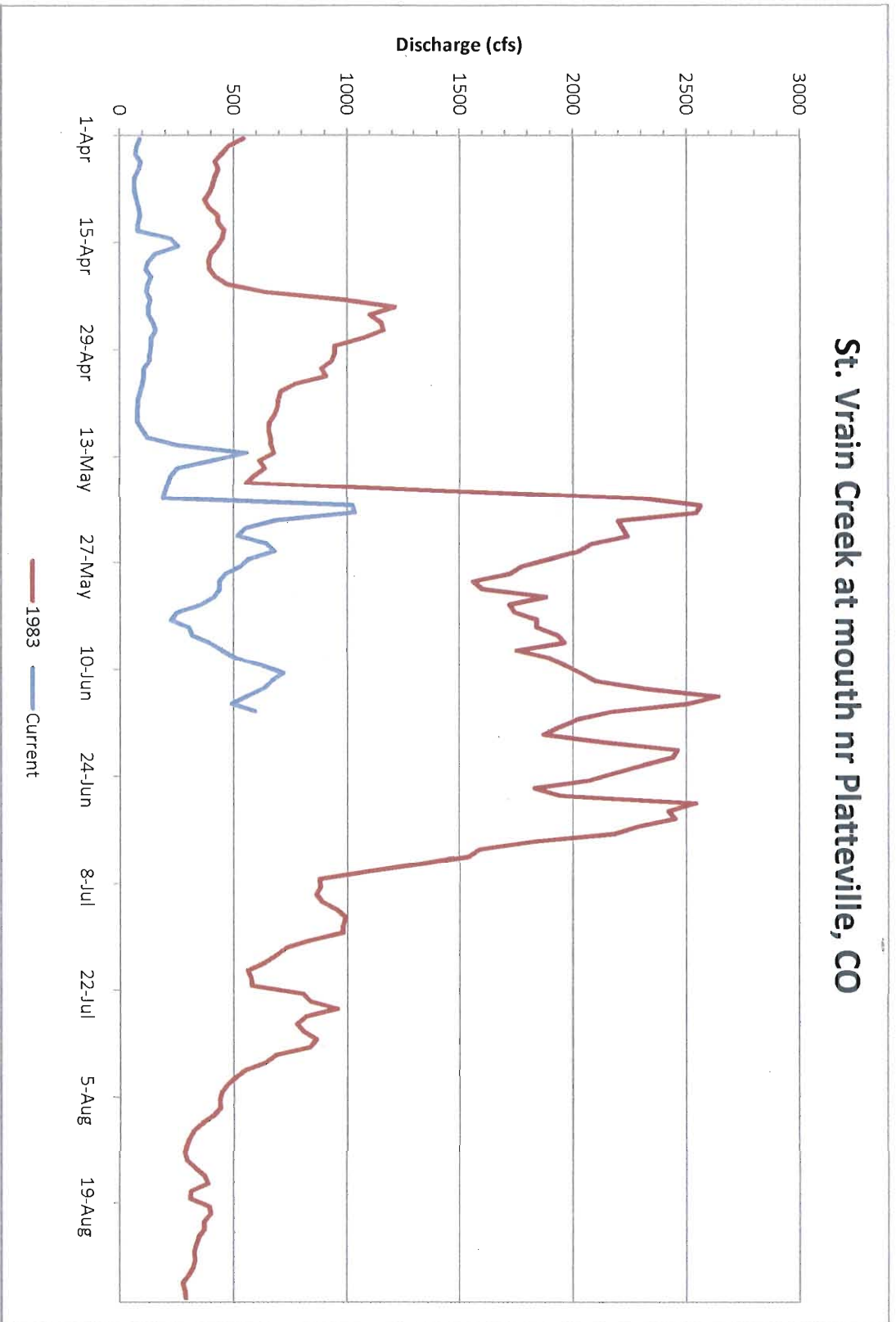
# South Platte River nr Julesburg, CO



# Clear Creek at Golden, CO



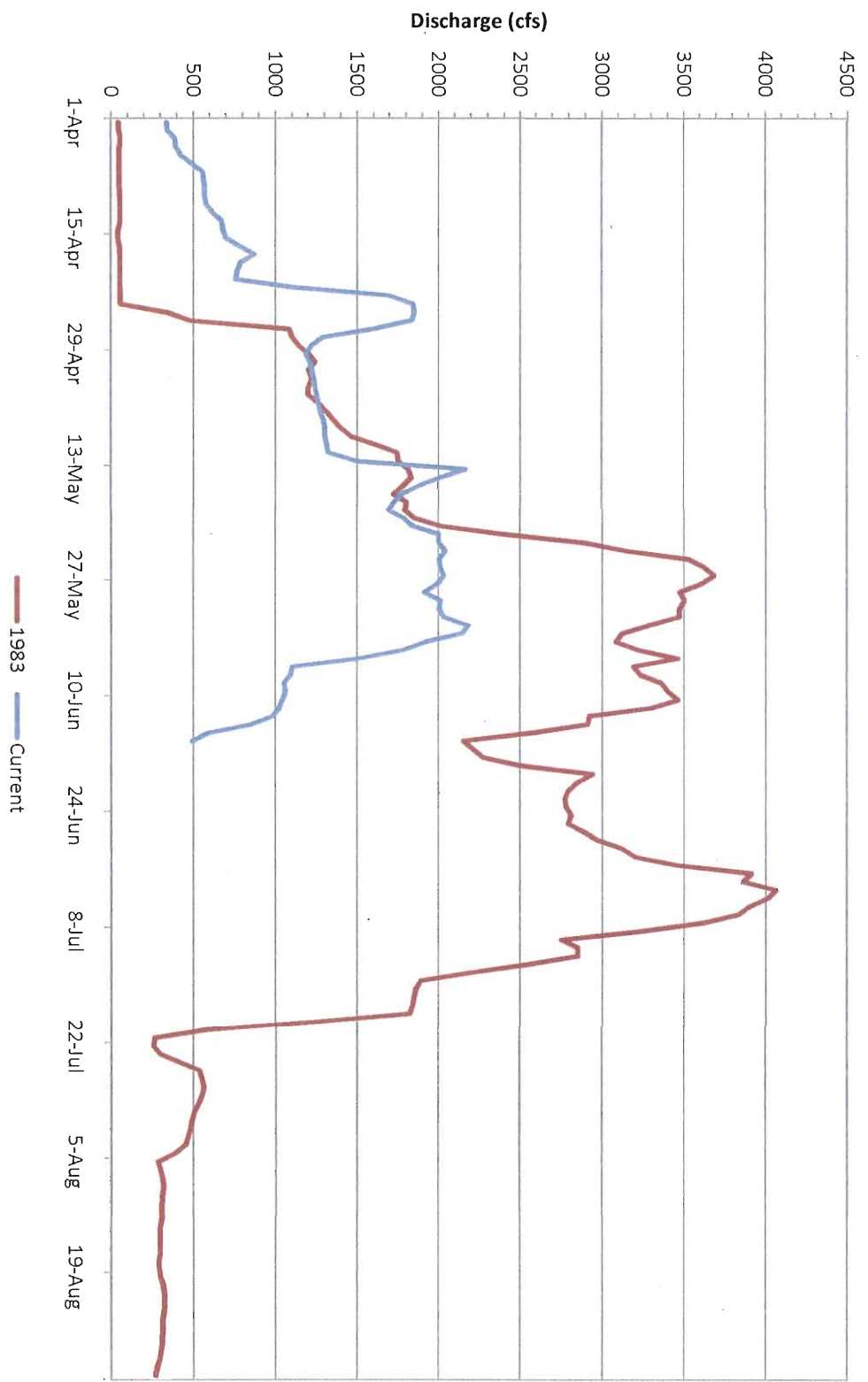
# St. Vrain Creek at mouth nr Platteville, CO



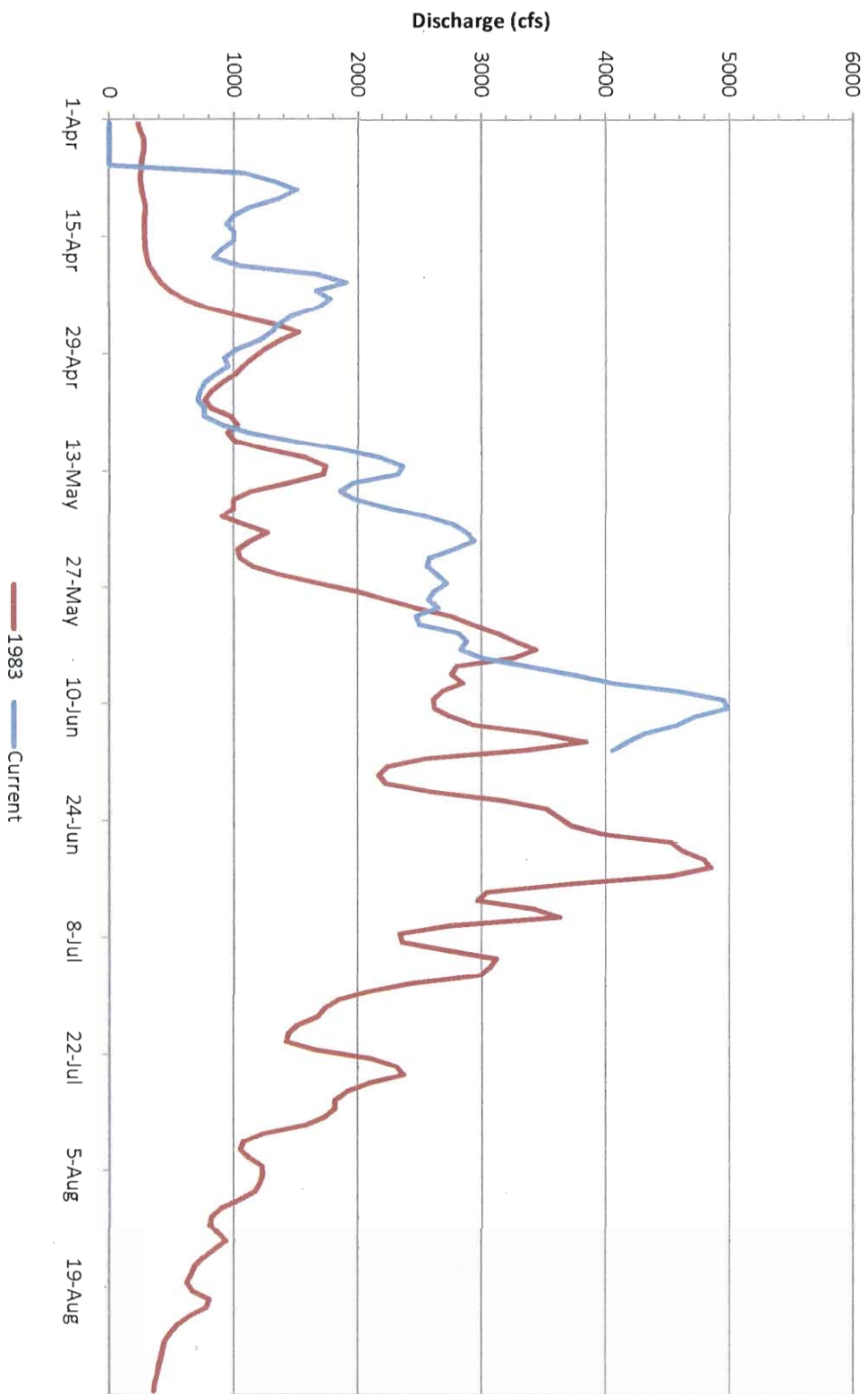
# Laramie River nr Bosler, WY



# Laramie River at Ft Laramie, WY

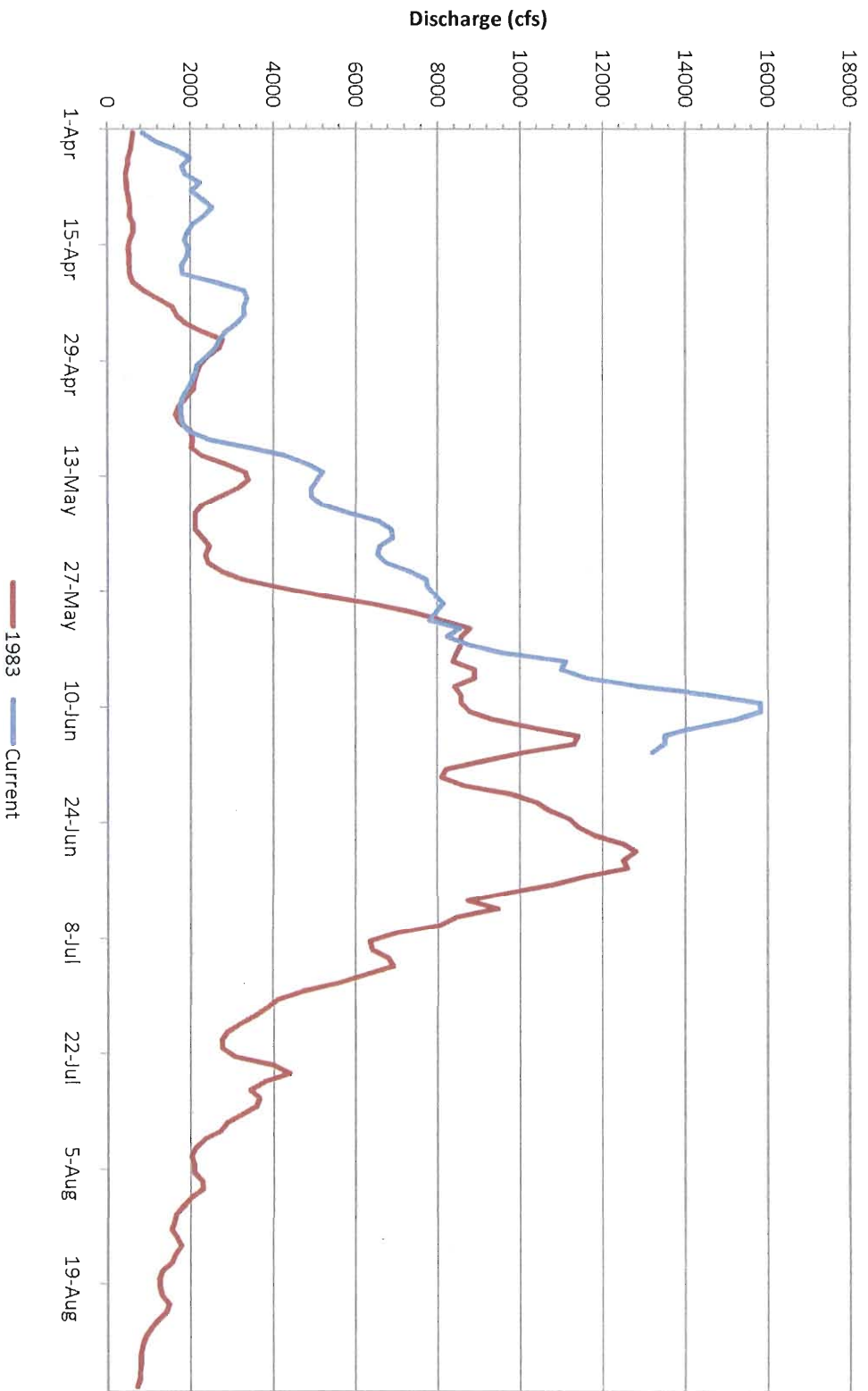


# North Platte River at Northgate, CO

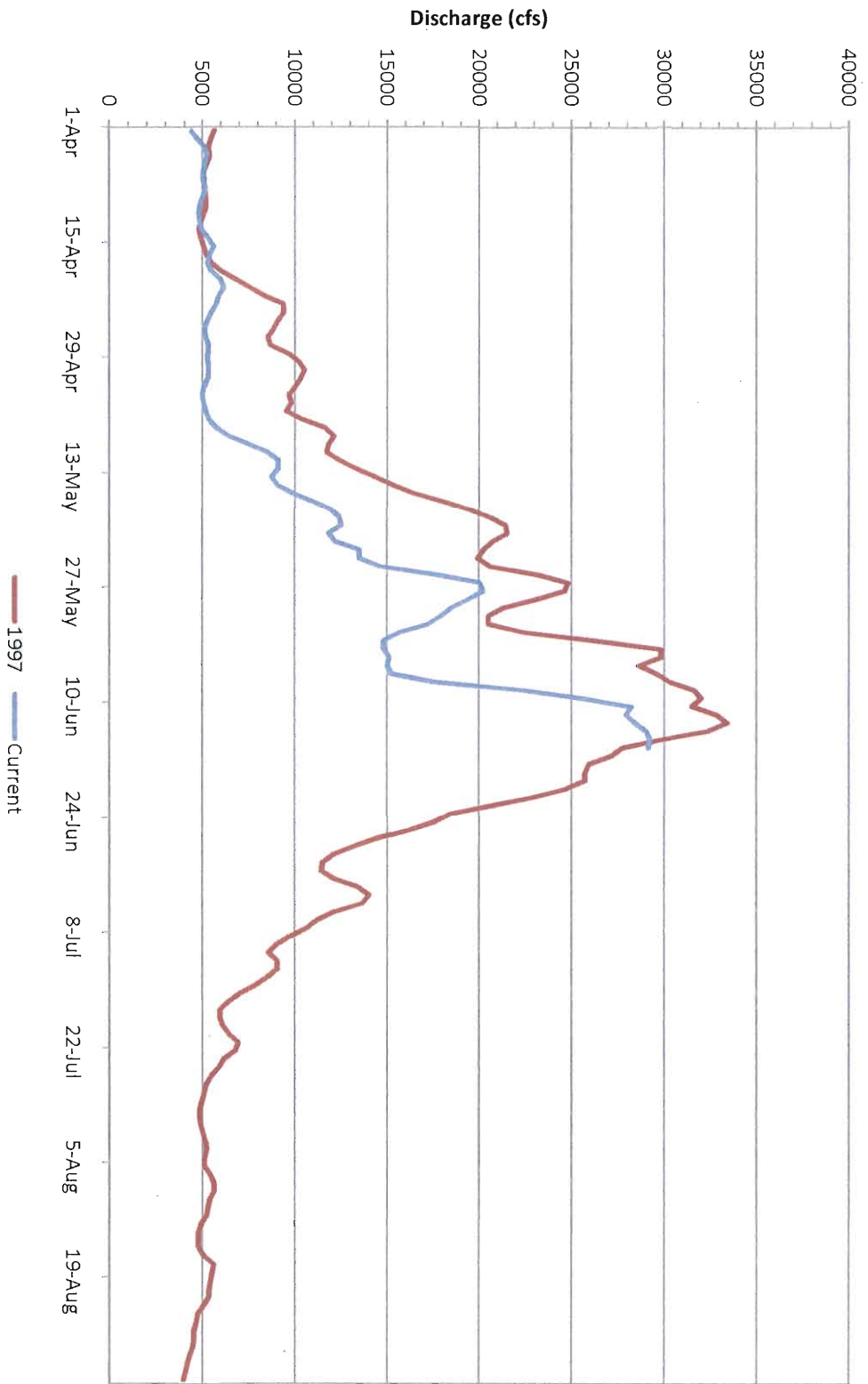




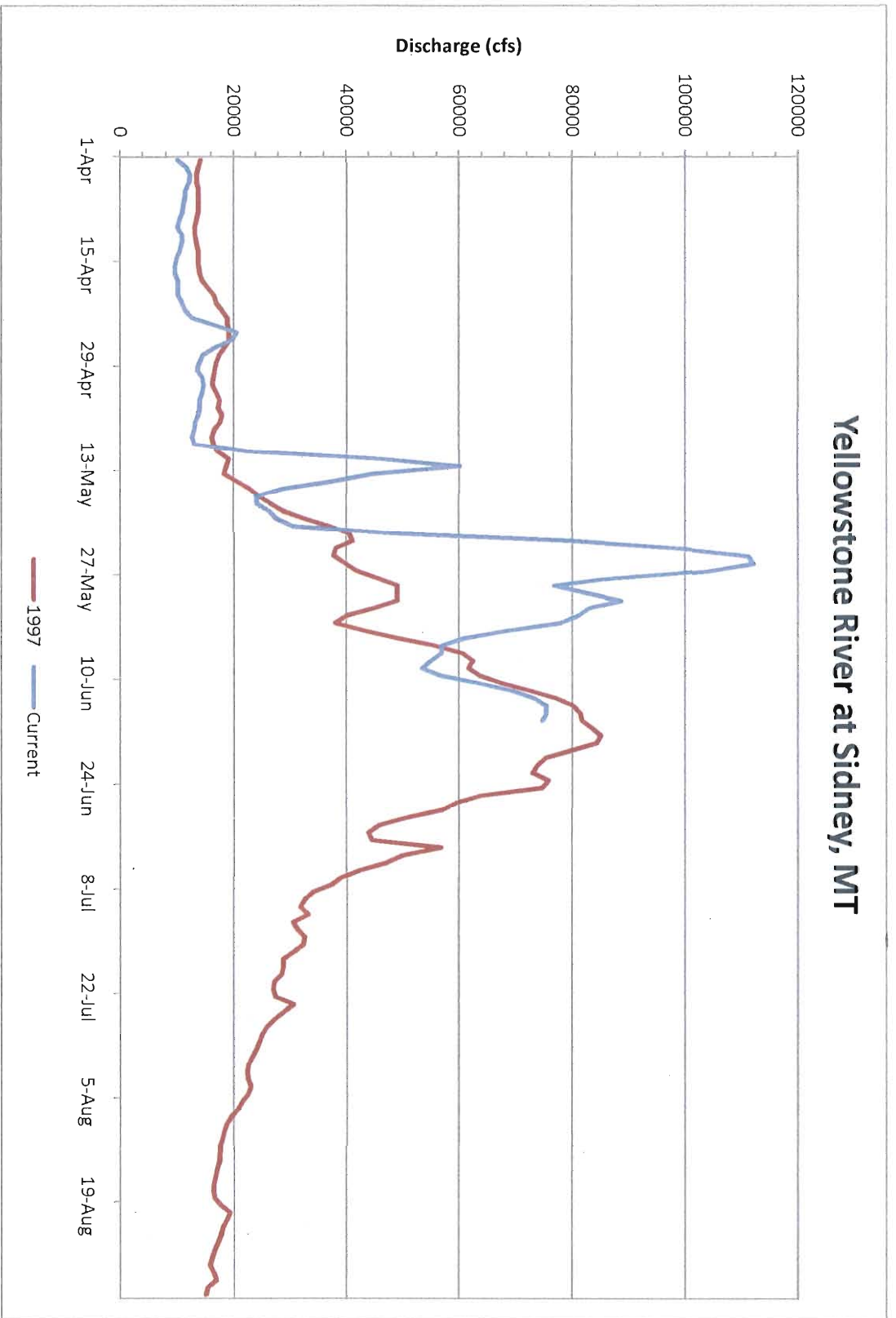
# North Platte River at Sinclair, WY



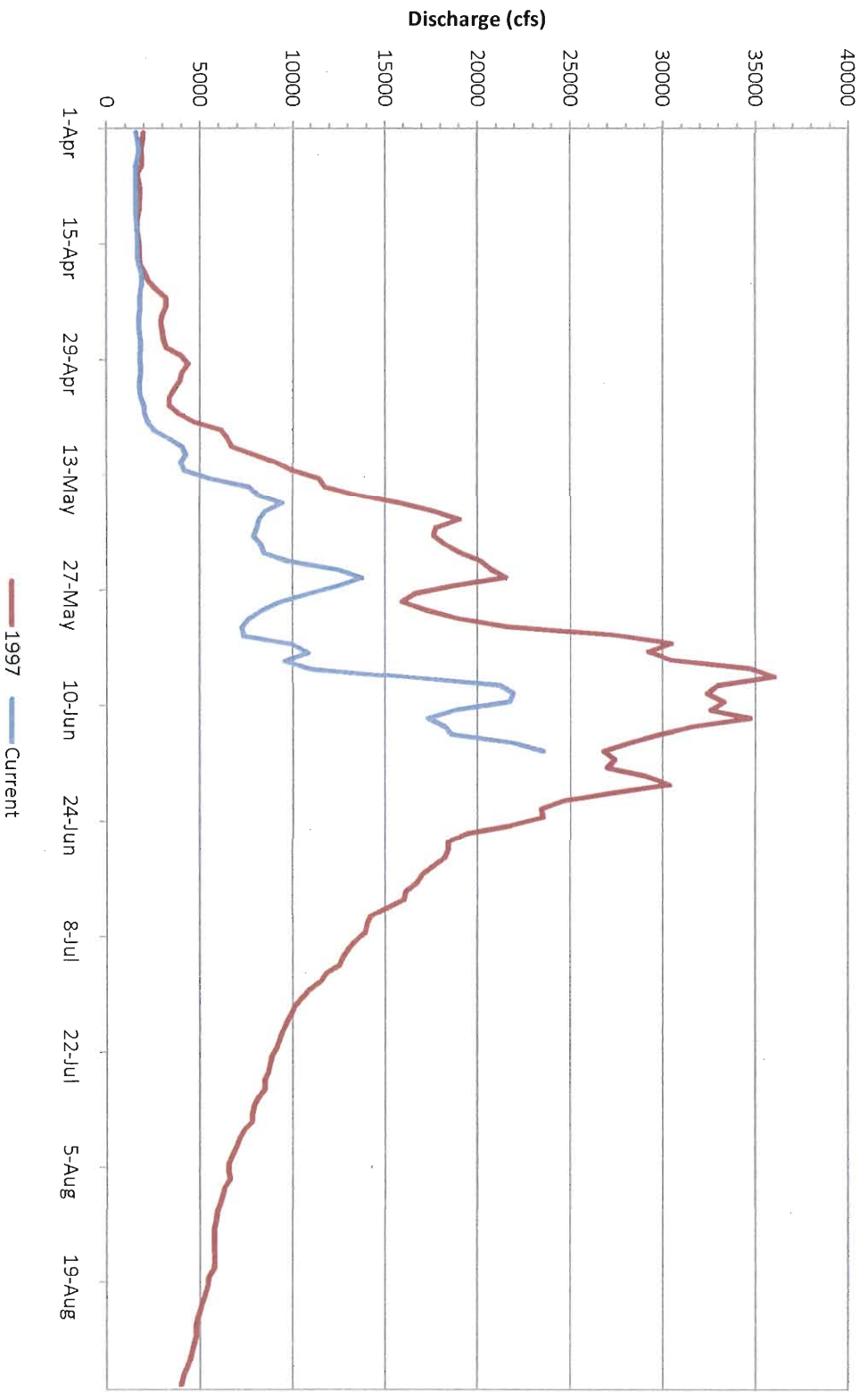
# Missouri River at Toston, MT



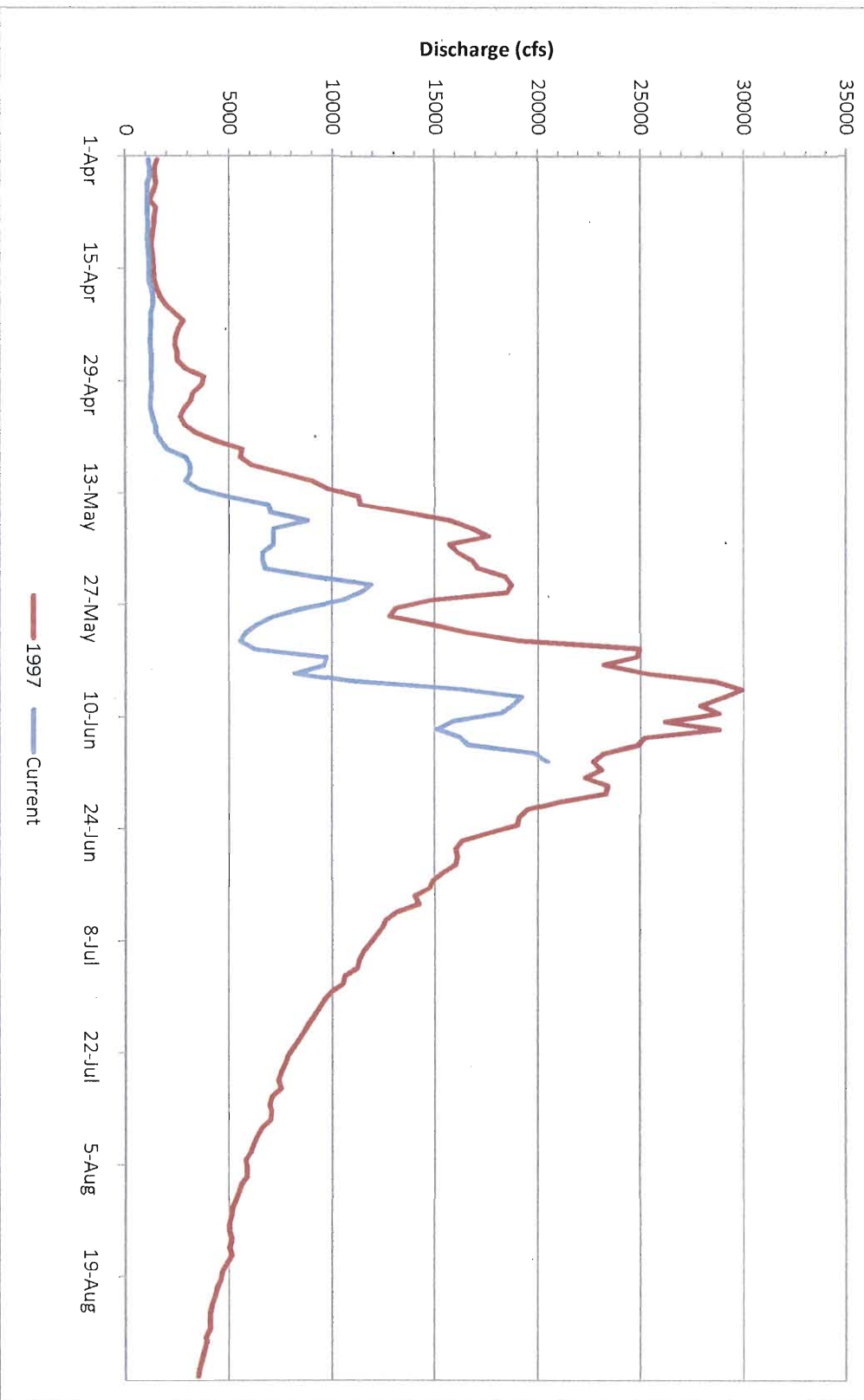
# Yellowstone River at Sidney, MT



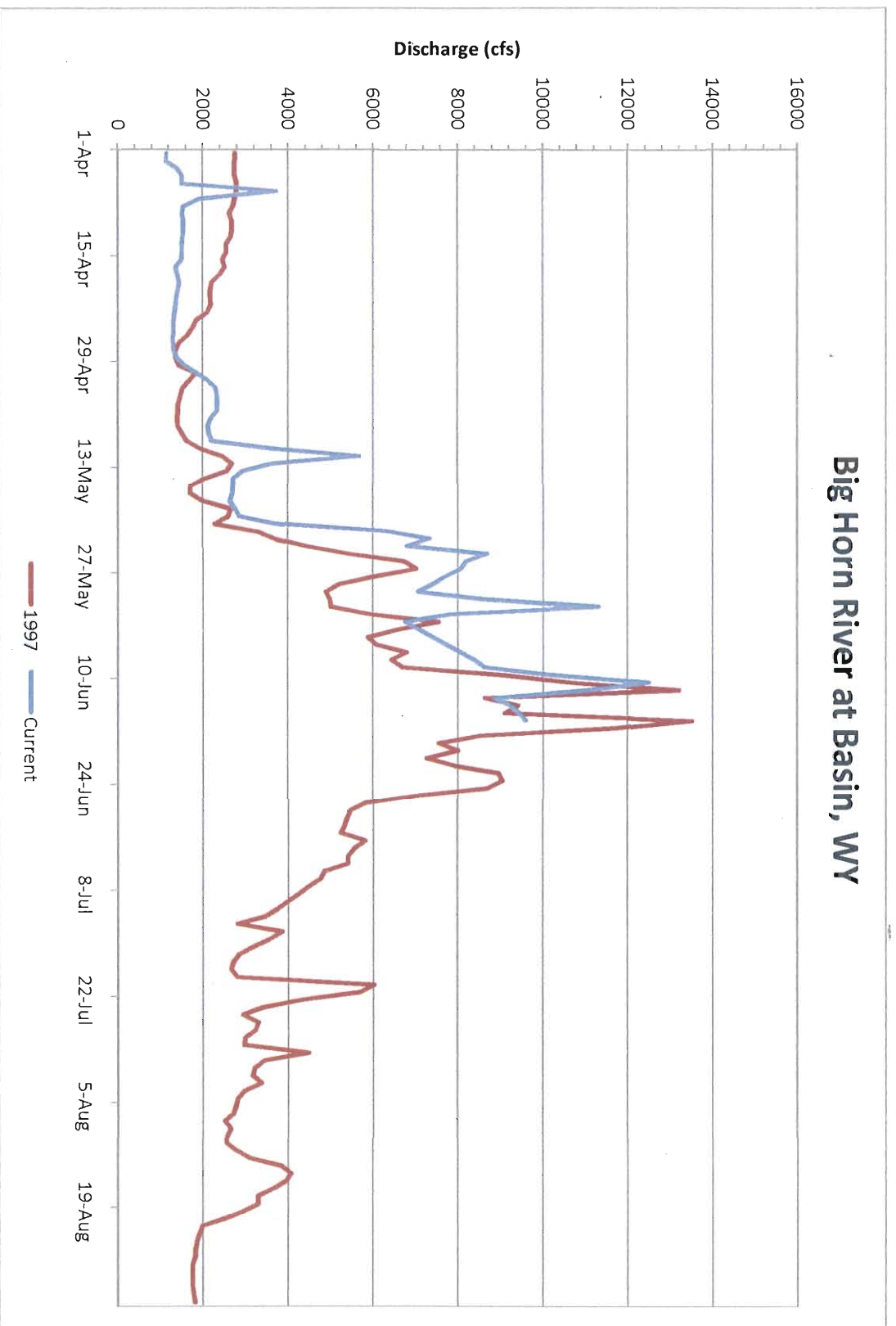
# Yellowstone River at Livingston, MT



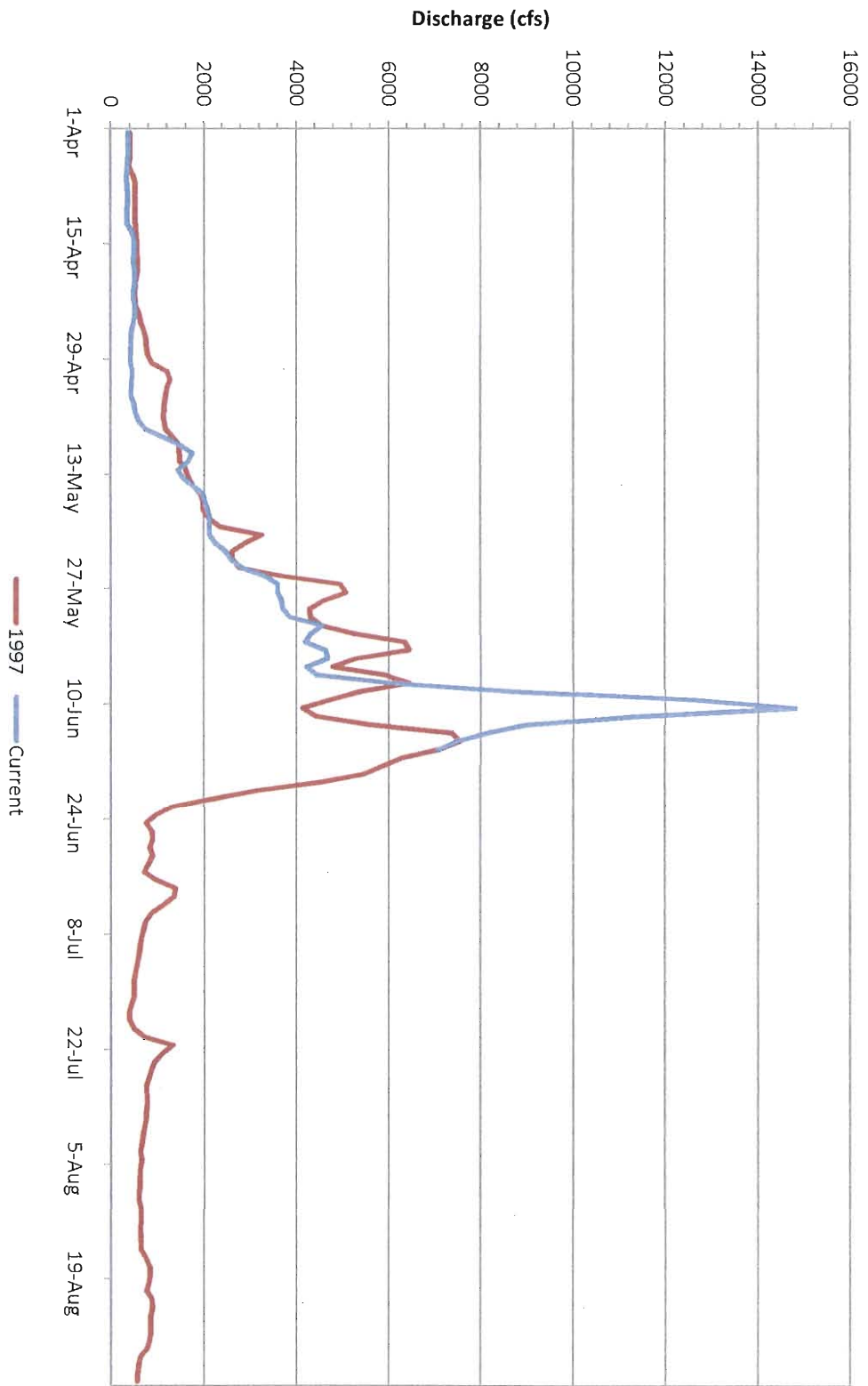
# Yellowstone River at Corwin Springs, MT



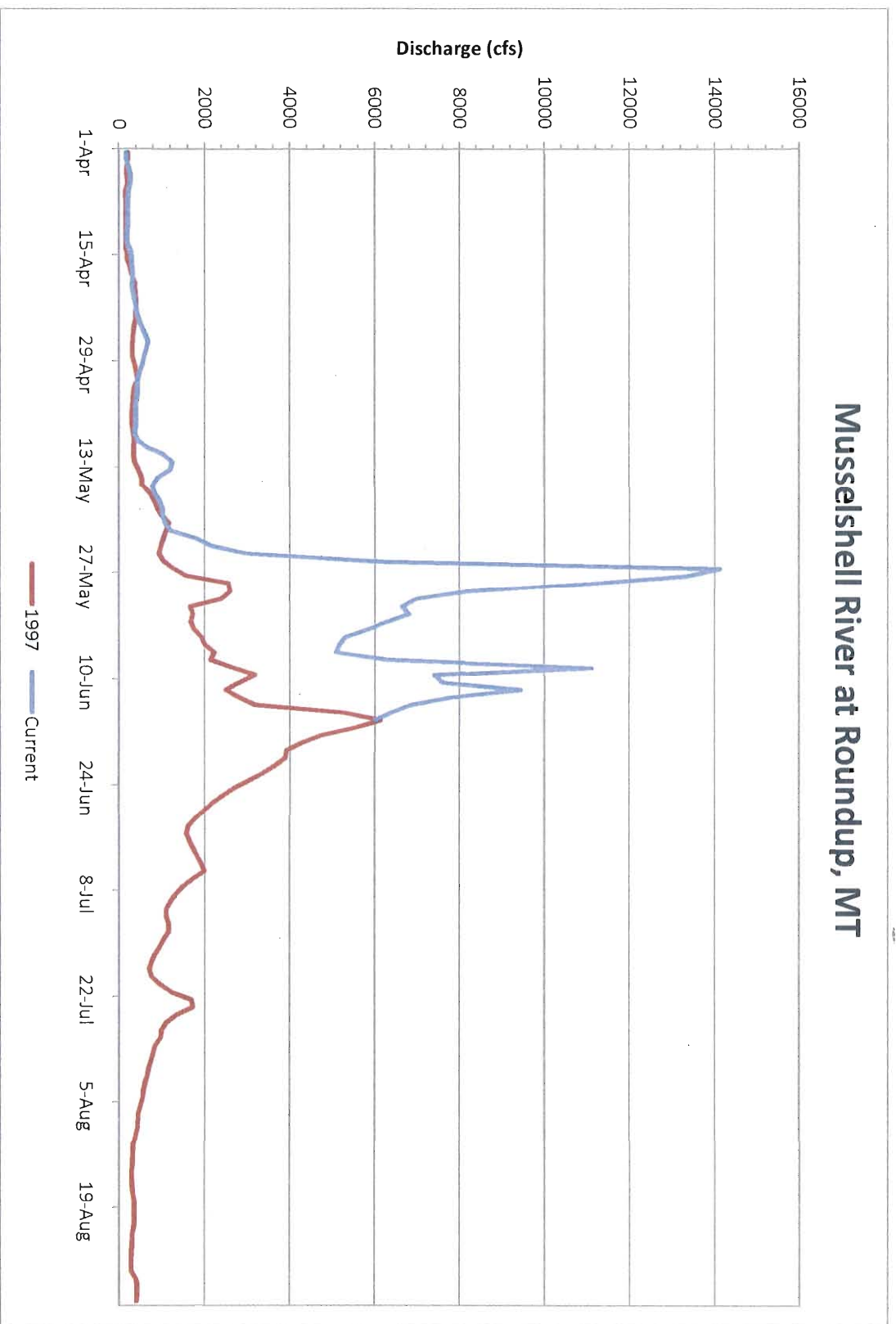
# Big Horn River at Basin, WY



# Sun River at Vaughn, MT

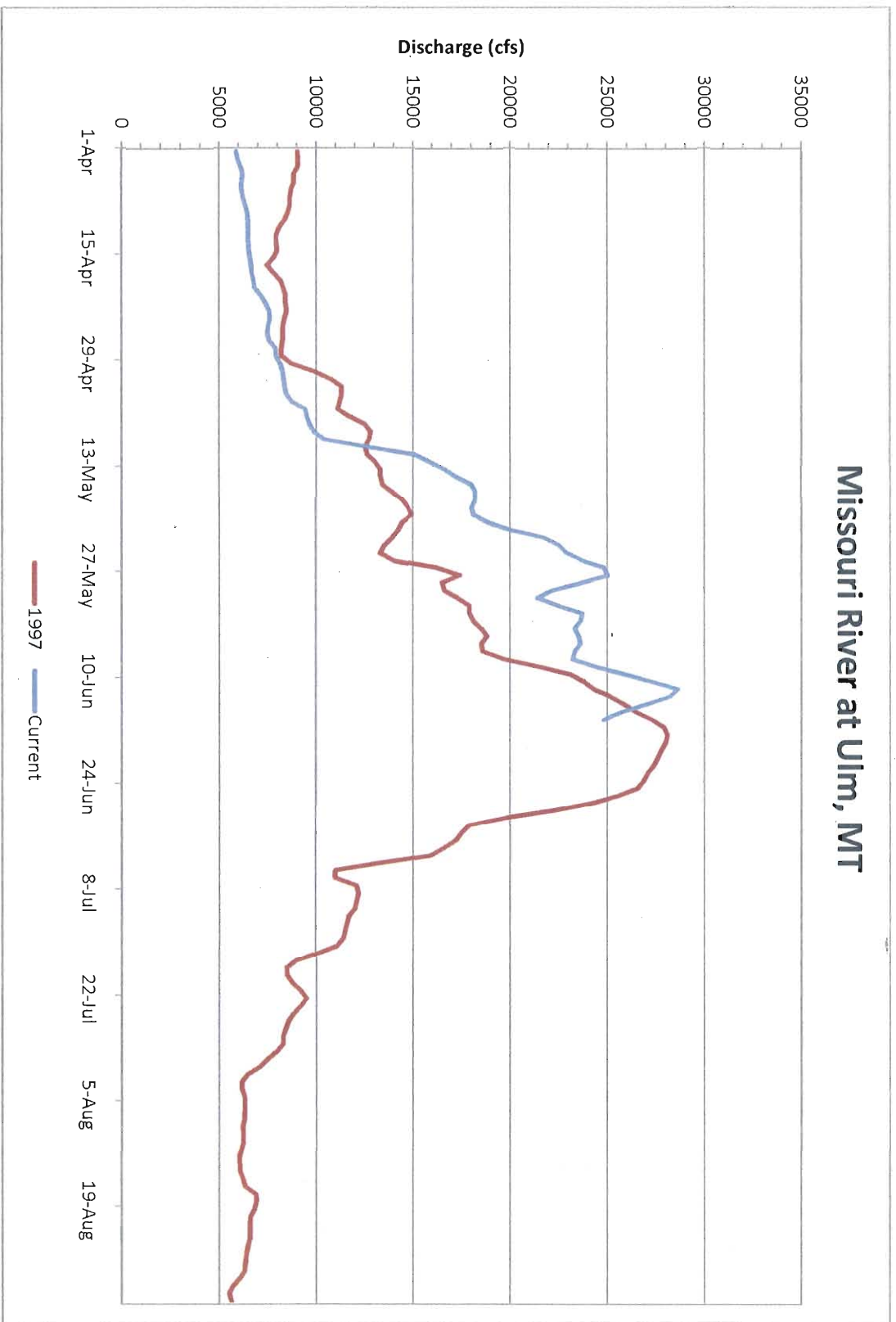


# Musselshell River at Roundup, MT

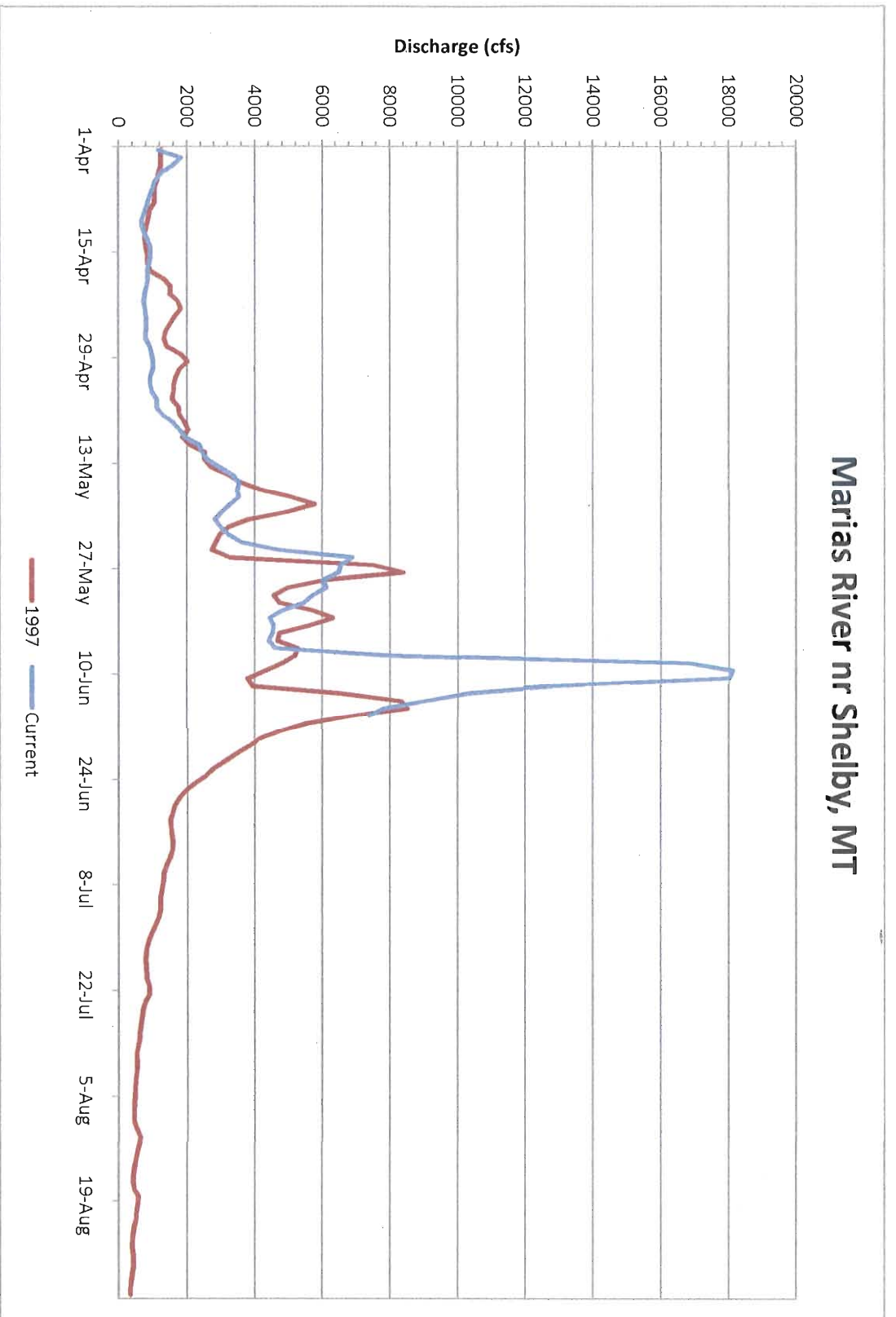




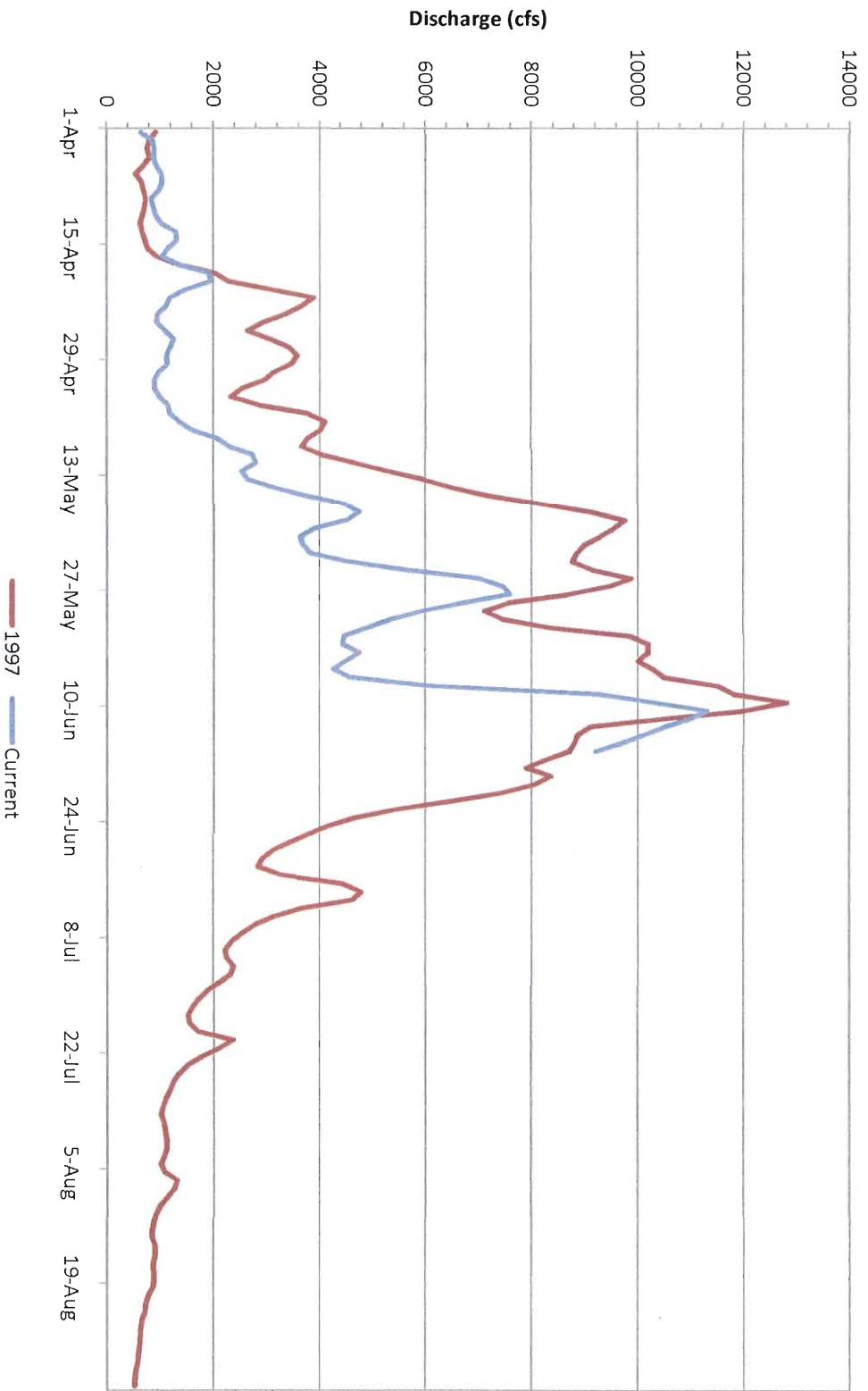
# Missouri River at Ulm, MT



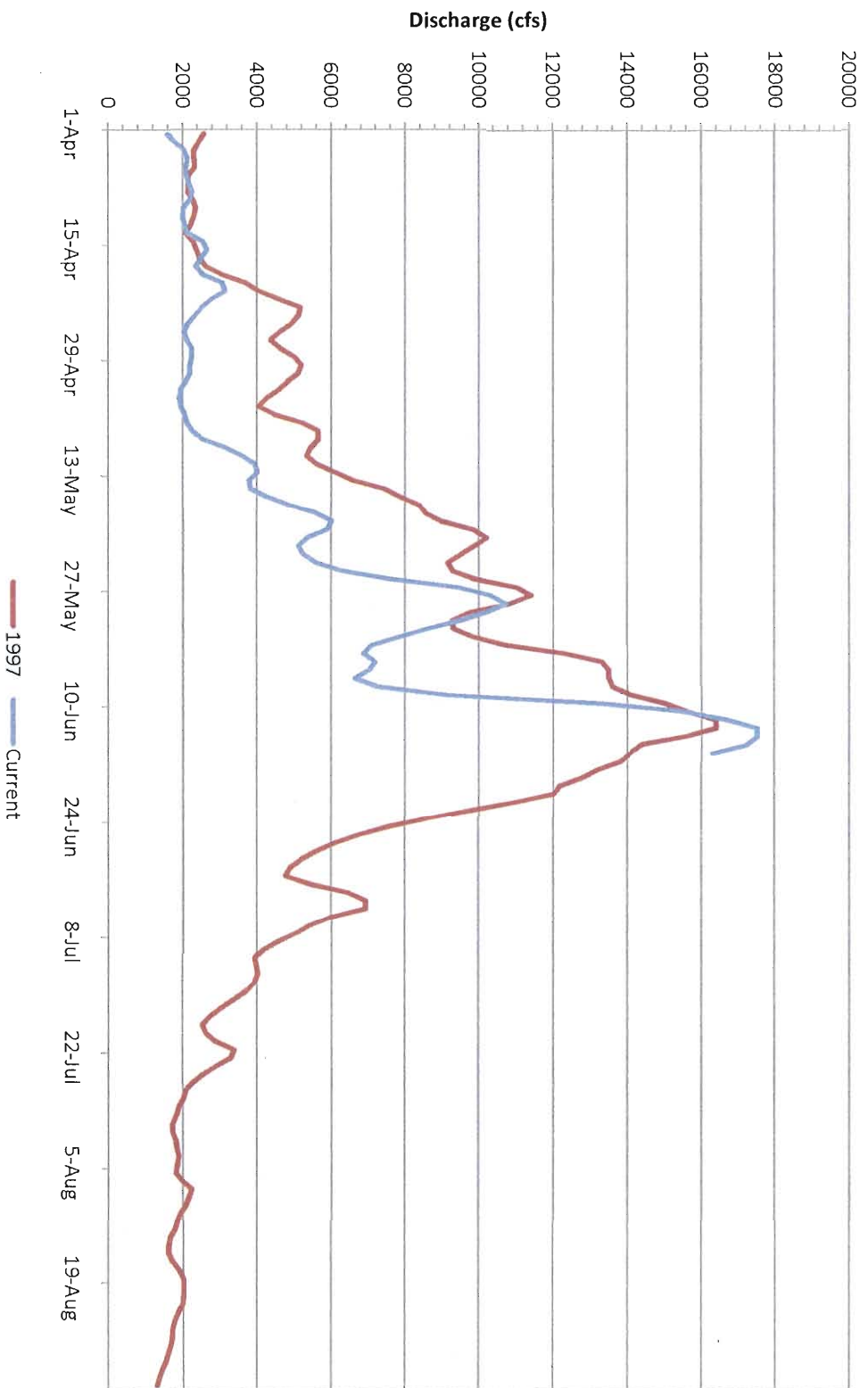
# Marias River nr Shelby, MT



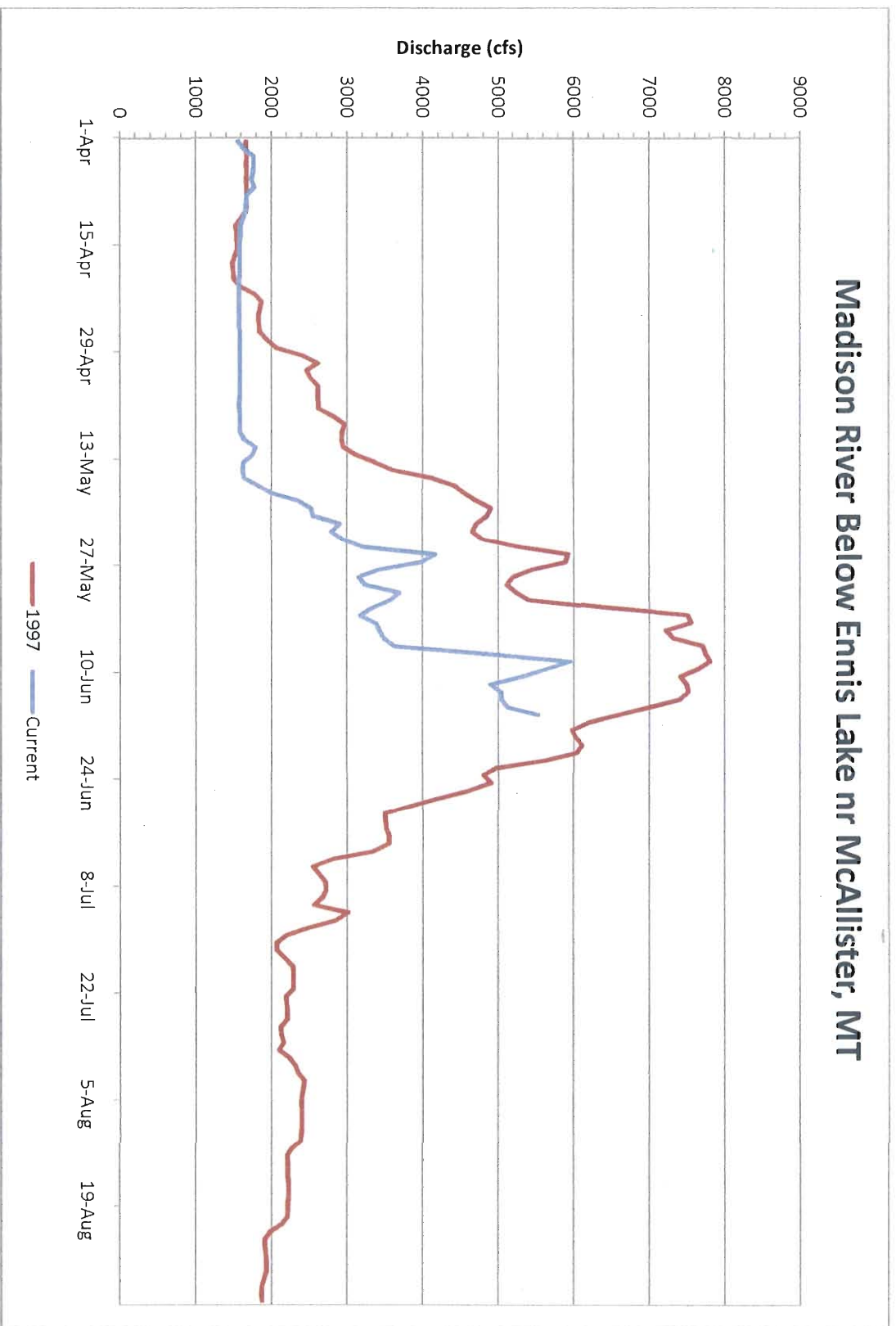
# Big Hole River nr Melrose, MT



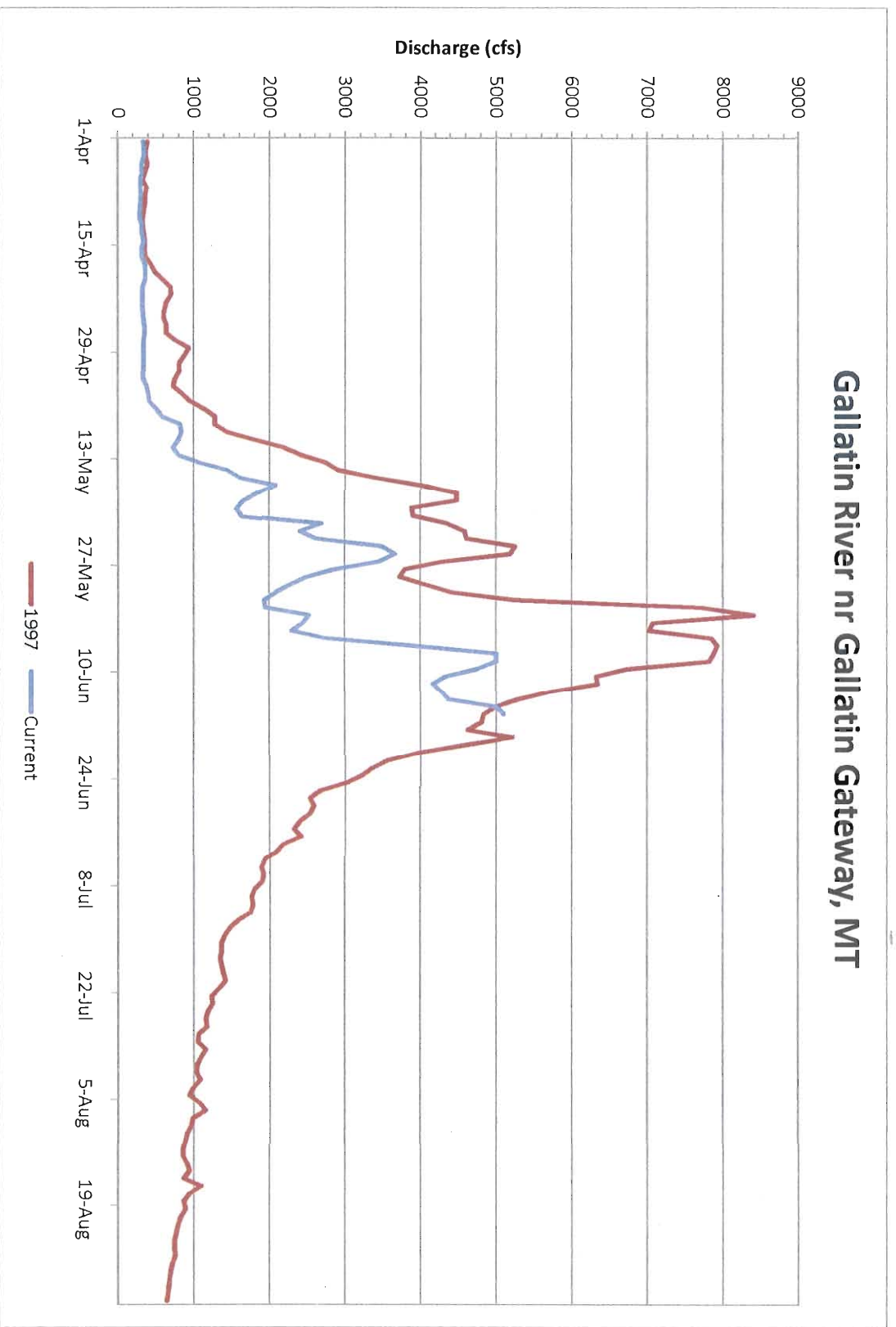
# Jefferson River nr Three Forks, MT



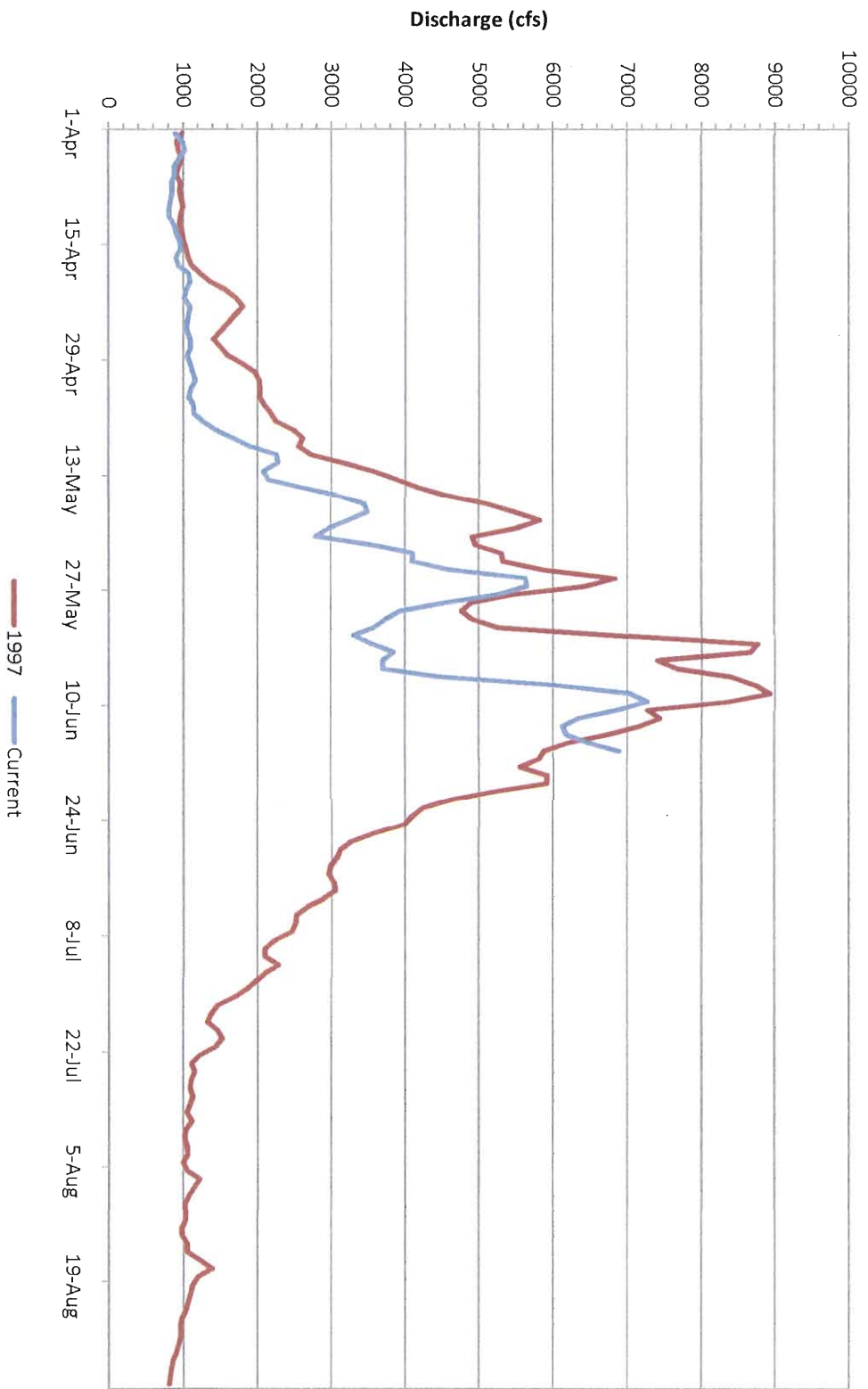
# Madison River Below Ennis Lake nr McAllister, MT



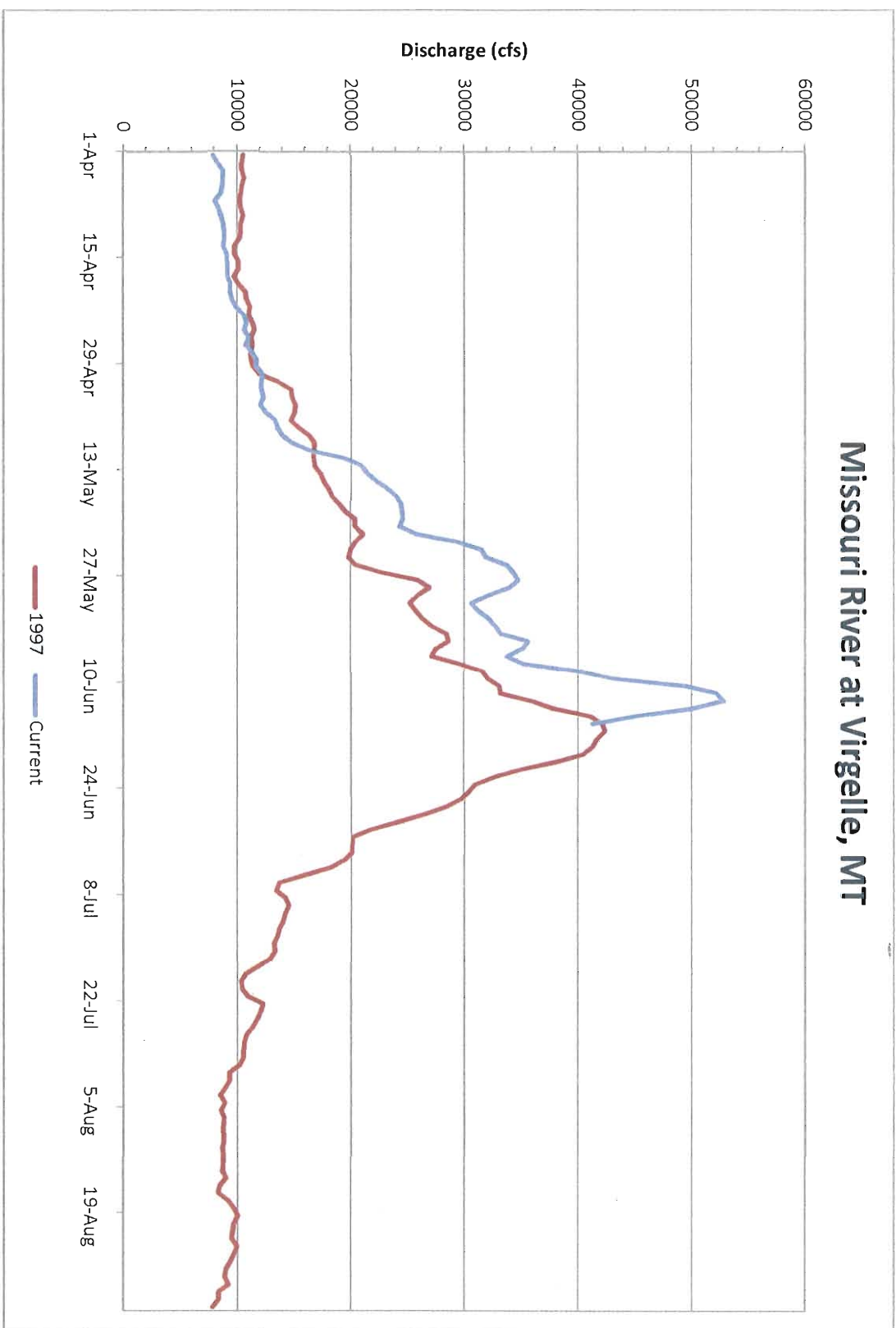
# Gallatin River nr Gallatin Gateway, MT



# Gallatin River at Logan, MT

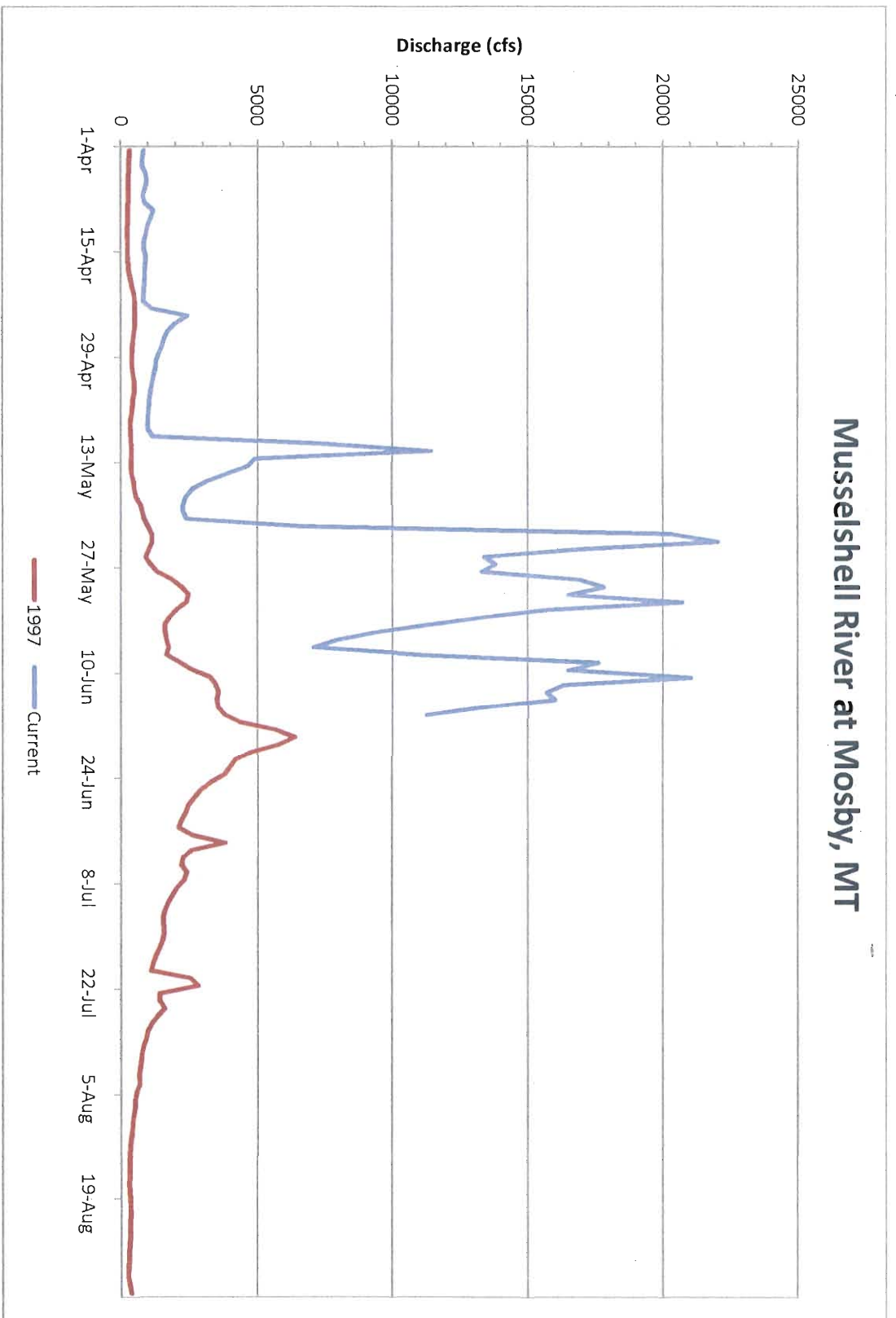


# Missouri River at Virgelle, MT

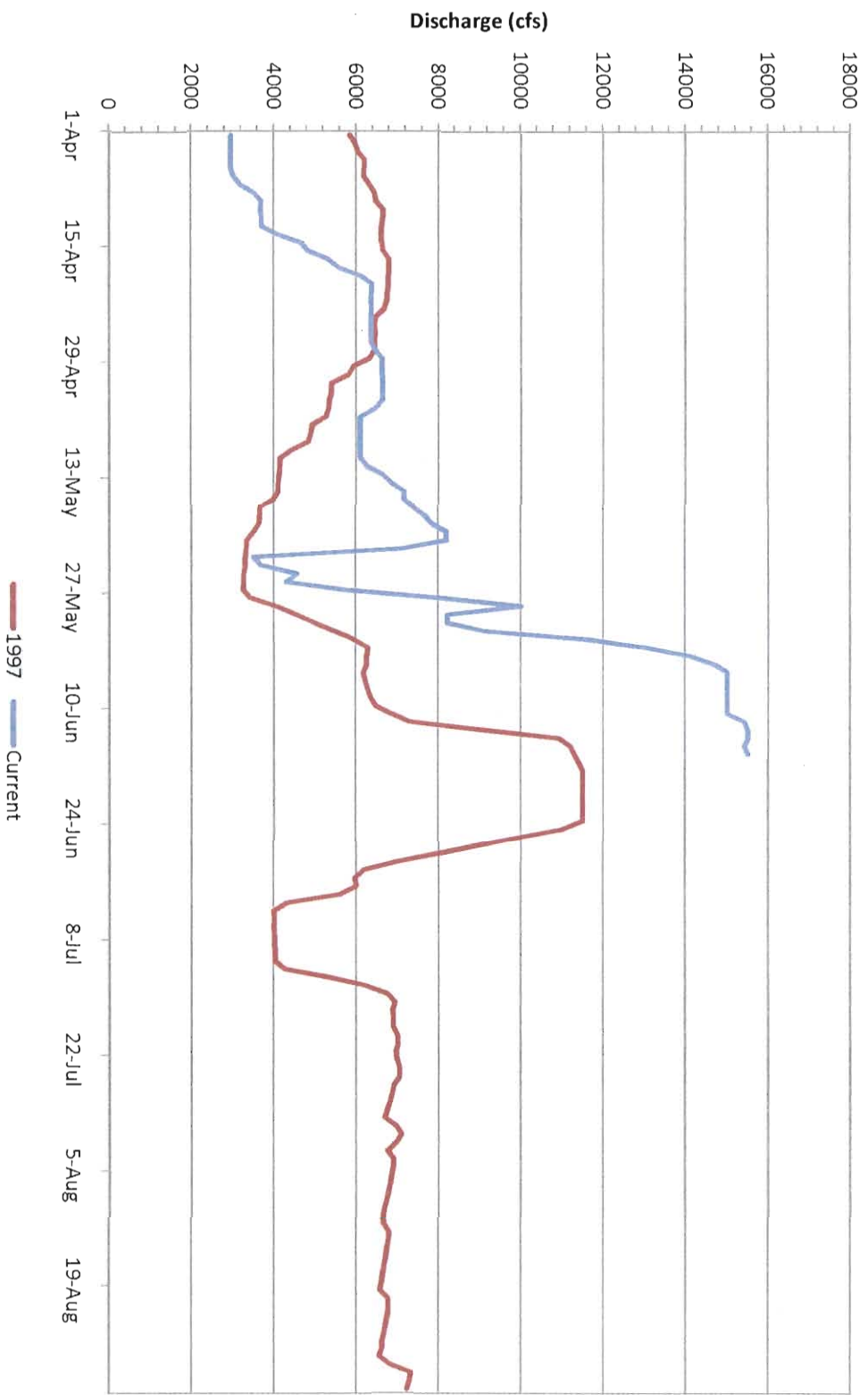




# Musselshell River at Mosby, MT



# Big Horn River at St. Xavier, MT



**NWO**

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**From:** MRJIC  
**Sent:** Friday, June 17, 2011 2:49 PM  
**Subject:** Missouri River Joint Information Center Call 5 p.m. (CDT)

Reminder: The daily call will occur at 1700hrs/CT. Call in information is as follows:

877-336-1828

Access Code: [REDACTED]#

Security Code: [REDACTED]

This call is intended for Congressional Delegation, Tribes, State Government, Local Government, and Press. Please do not distribute the number to the general public, the JIC is set up with email and call in accessibility to answer questions for the general public.

General format includes updates from the Hydrometeorological Center (HPC), Iowa Department of Transportation, Missouri Department of Transportation, Nebraska Department of Transportation, the Missouri River Basin Water Management Division, USACE Omaha District Emergency Operations Center, USACE Kansas City District Emergency Operations, followed by a Questions and Answer opportunity.

To listen to the previous recordings, please visit our website.

[http://www.nwo.usace.army.mil/html/op-e/flood2011/pressconf\\_arch.html](http://www.nwo.usace.army.mil/html/op-e/flood2011/pressconf_arch.html)

For bios of USACE staff on 5 p.m. call, please visit our website.

[http://www.nwo.usace.army.mil/html/op-e/flood2011/Flood\\_Press\\_Packet\\_Jun\\_2011\\_QR.pdf](http://www.nwo.usace.army.mil/html/op-e/flood2011/Flood_Press_Packet_Jun_2011_QR.pdf)

Thank you.

The Missouri River Joint Information Center (MRJIC)

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Friday, June 17, 2011 2:37 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Schenk, Kathryn  
M NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02; Bertino, John  
J Jr NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO  
**Subject:** Flood Report #15, Fort Peck (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

All:

Releases from Fort Peck Dam continue at 65,000 cfs with 13,000 through the power plants and 52,000 through the spillway. Fort Peck pool elevation was 2252.3 at 0700 today. No issues were reported on the dam or spillway in the last 24 hours. It is raining heavily in the Project area today.

Joel Ames is still assisting the Fort Peck Tribes.

I was interviewed by Mt Fish, Wildlife and Parks yesterday. The interview focused on the historic magnitude of this flood event. The interview went very well.

[REDACTED]  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
PH: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

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**From:** [REDACTED] NWO  
**Sent:** Friday, June 17, 2011 2:12 PM  
**To:** CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED] MVR; Farhat, Jody S NWD02; [REDACTED] HQ02; [REDACTED] HQ02; [REDACTED] / HQ02; [REDACTED] W HQ02; [REDACTED] LRH; [REDACTED] LRH; [REDACTED] MVM; [REDACTED] LRH  
**Cc:** [REDACTED] NWO; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD-OMAHA; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] RMC; [REDACTED] NWD02; [REDACTED] NWD; [REDACTED] E MVD; DLL-CELRD-RBW; Patriciawhitt@msn.com; LeMaster, Darren D MAJ HQ02; Siegrist, Kevin W CPT HQ; [REDACTED] SAW; [REDACTED] MVD  
**Subject:** Missouri River Basin Water Management Division Situation Report of 6-17-11 (UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-17-11.docx

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] Eileen,

Today's NWD Water Management situation report is attached.

[REDACTED]  
Missouri Basin Water Managment Division  
Northwestern Division  
Corps of Engineers

[REDACTED]  
[REDACTED]@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

## Missouri River Basin Water Management Situation Report – 6-17-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. The relatively high inflows that have been coming into Fort Peck and Garrison Reservoirs are beginning to drop down to the release values, as several days have passed since the rains earlier in the week. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/17/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	68.0	65.8	2250	2252.2	-0.1
Garrison	154.0	143.8	1854	1853.7	0.1
Oahe	154.0	150.4	1620	1618.6	0.0
Big Bend	150.0	143.8	1423	1419.7	0.1
Fort Randall	150.0	143.4	1375	1364.2	0.5
Gavins Point	152.0	150.1	1210	1207.7	0.1

Based on the current level data on the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time. An issue surfaced June 15 that required the spillway at Fort Randall to be shut and the flood control tunnels to be used. Repairs have been made, and the spillway is now being used.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/17/11)**

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	19,018	18,463	-556	971	-57
Garrison	23,714	23,821	125	1,489	8
Oahe	22,611	23,137	532	1,102	48
Big Bend	1,620	1,798	190	60	100
Fort Randall	4,321	5,418	1,109	985	100
Gavins Point	385	450	68	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. By Monday, June 20, releases from all six reservoirs will be at the currently anticipated maximum releases. Full listing of the reservoir data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/17/11)**

Reservoir	Yesterday kcfs	Forecast Today kcfs	7 days out 24 June kcfs	14 days out 1 July kcfs	Pre-2011 Record kcfs
Fort Peck	65.8	65	60	60	35
Garrison	143.8	150	150	150	65
Oahe	150.4	150	150	150	59
Big Bend	143.8	150	150	150	74
Fort Randall	143.4	143	148	148	67
Gavins Point	150.1	150	150	150	70

## River Conditions

Levees have been constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases move through their downstream reaches and inflows from the downstream reaches and localized precipitation joins these high releases. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

**Table 4. Missouri River Stage Data for 6/17/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.3	20.6	mid-Jun
Pierre, SD	13	18.8	18.7	mid-Jun
Sioux City, IA	30	33.2	35-37	mid-Jun thru July
Decatur, NE	35	37.9	40-42	mid-Jun thru July
Omaha, NE	29	33.3	34-36	mid-Jun thru July
Nebraska City, NE	18	26.0	27-28+	mid-Jun thru July
St. Joseph, MO	17	22.8	27-32	mid-Jun thru July
Kansas City, MO	32	25.7	30-39	mid-Jun thru July
Waverly, MO	20	24.3	27-31	mid-Jun thru July
Boonville, MO	21	21.1	27-33	mid-Jun thru July
Hermann, MO	21	21.4	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. The stages at both cities are still about 3 feet below the constructed levee crests.

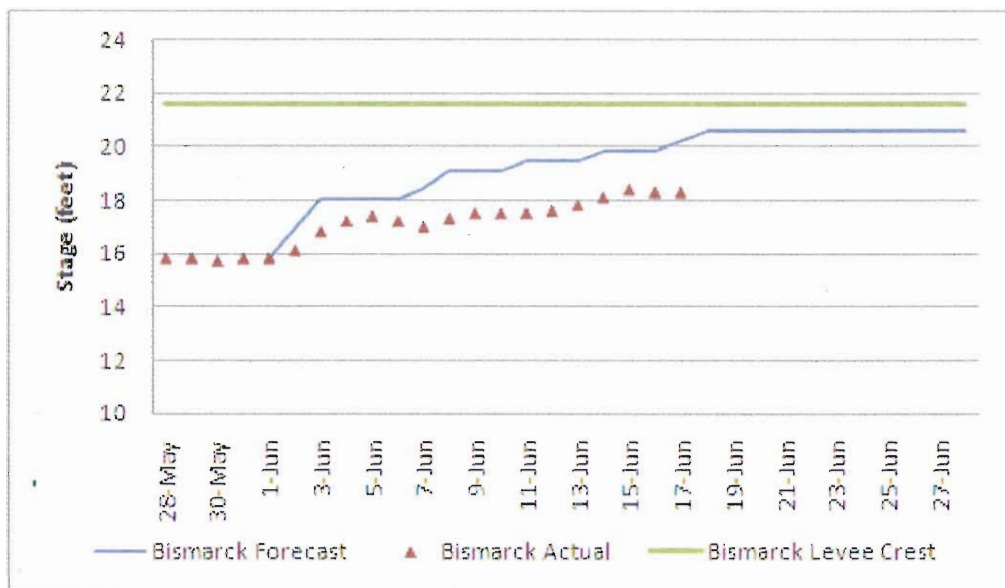


Figure 1. Missouri River stages at Bismarck, North Dakota.



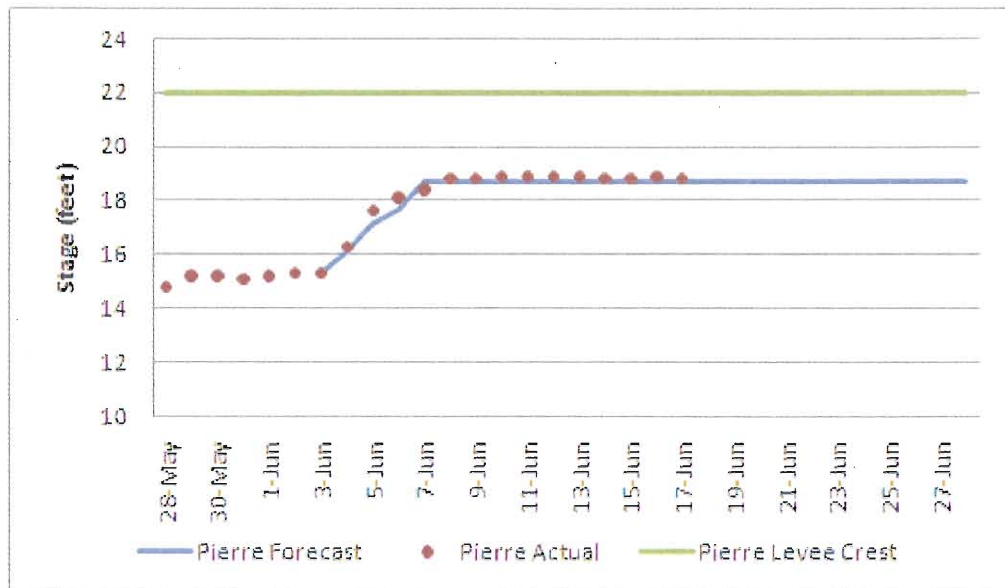


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread rain is forecasted for much of the Missouri River Basin, including heavier rainfall in North Dakota, South Dakota, and western Nebraska. Inflows from the heavier forecasted areas would drain into the five lower reservoirs in the System. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

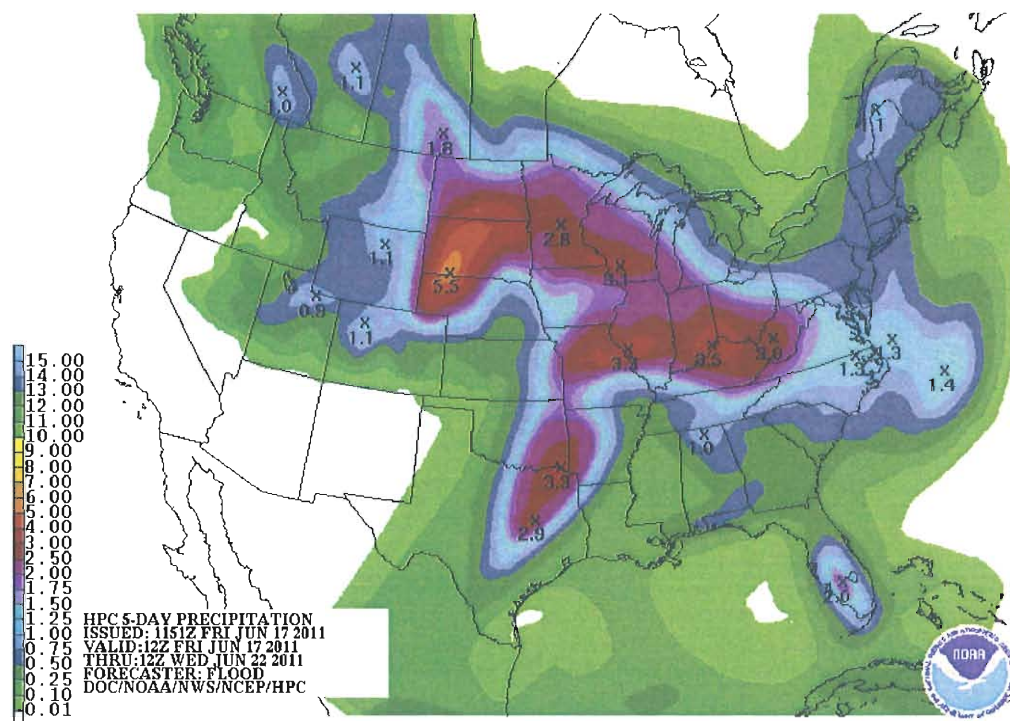
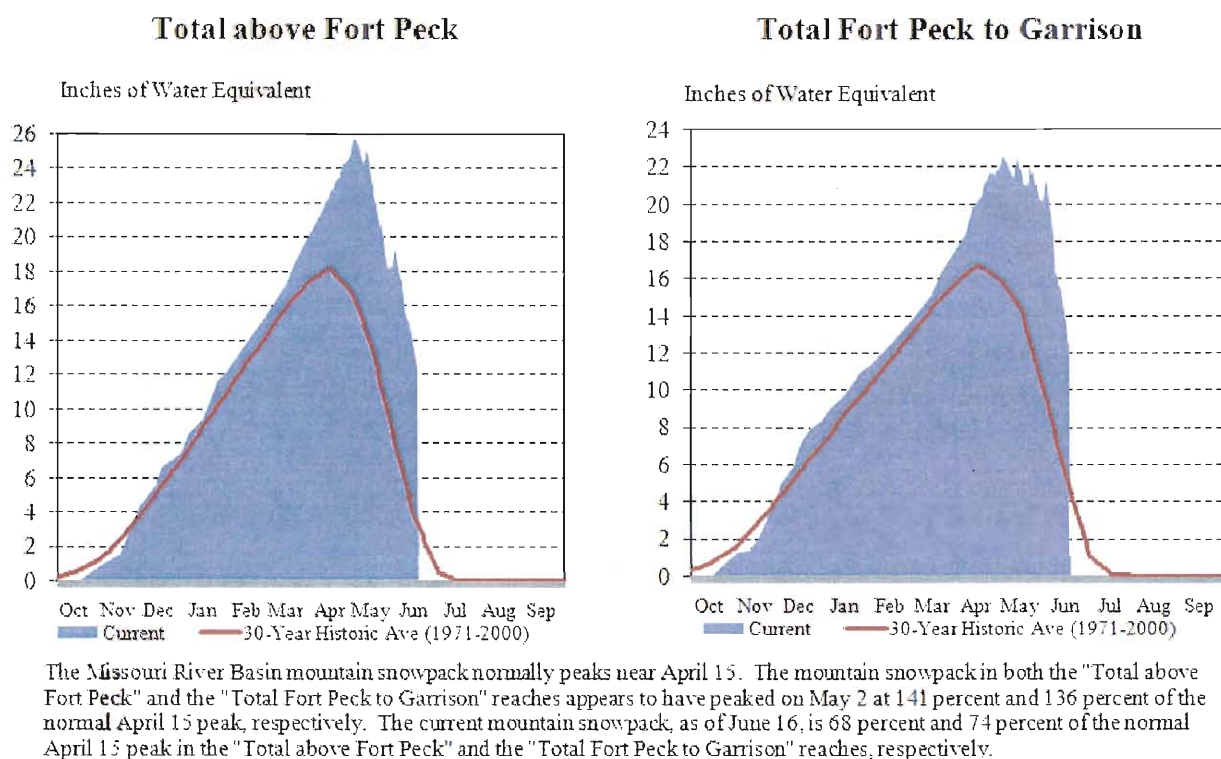


Figure 3. 5-day total QPF ending 0700 Tuesday, June 22, 2011.



June 16, 2011

Provisional data. Subject to revision.

Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 16, 2011.

## Current Actions and Notable Information

Levee construction been completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. The most recent of these levees, the Hamburg levee, has also been completed. The failure of levee L-575 occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is now above the 2010 maximum.

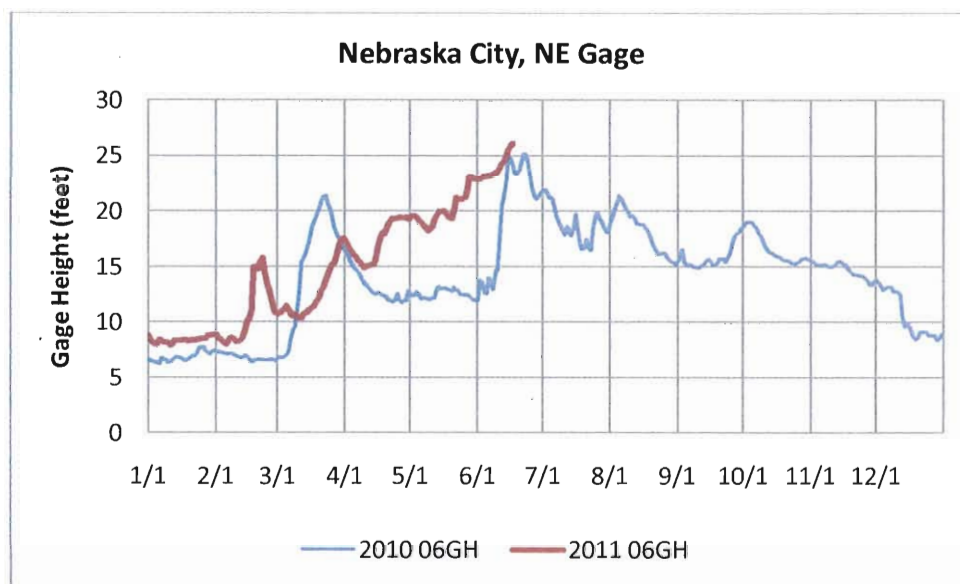


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri Monday, June 13. This location is across the river from Rulo, Nebraska. The gage plot for this location is shown below as Figure 6. Another factor, such as duration of water against the levee or back-to-back years with water against the levee appears to be playing a role in the failure of this levee as well as the levee near Hamburg.

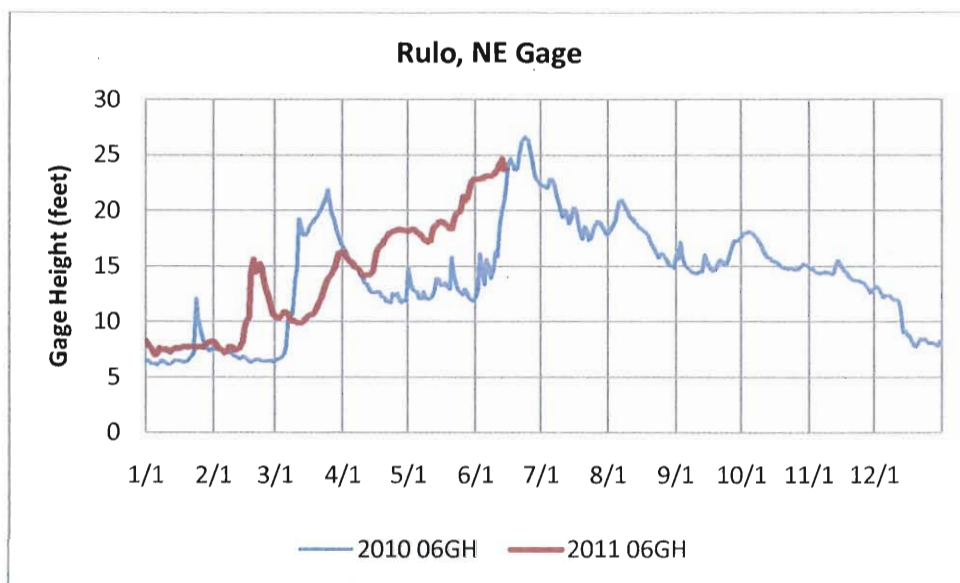


Figure 6. River stages at Rulo, Nebraska for 2010 and 2011.

Heavy rains fell over many areas of the basin between 0700 hours yesterday and today. Figure 7 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

NWS Central Region: Current 1-Day Observed Precipitation  
Valid at 6/17/2011 1200 UTC- Created 6/17/11 15:41 UTC

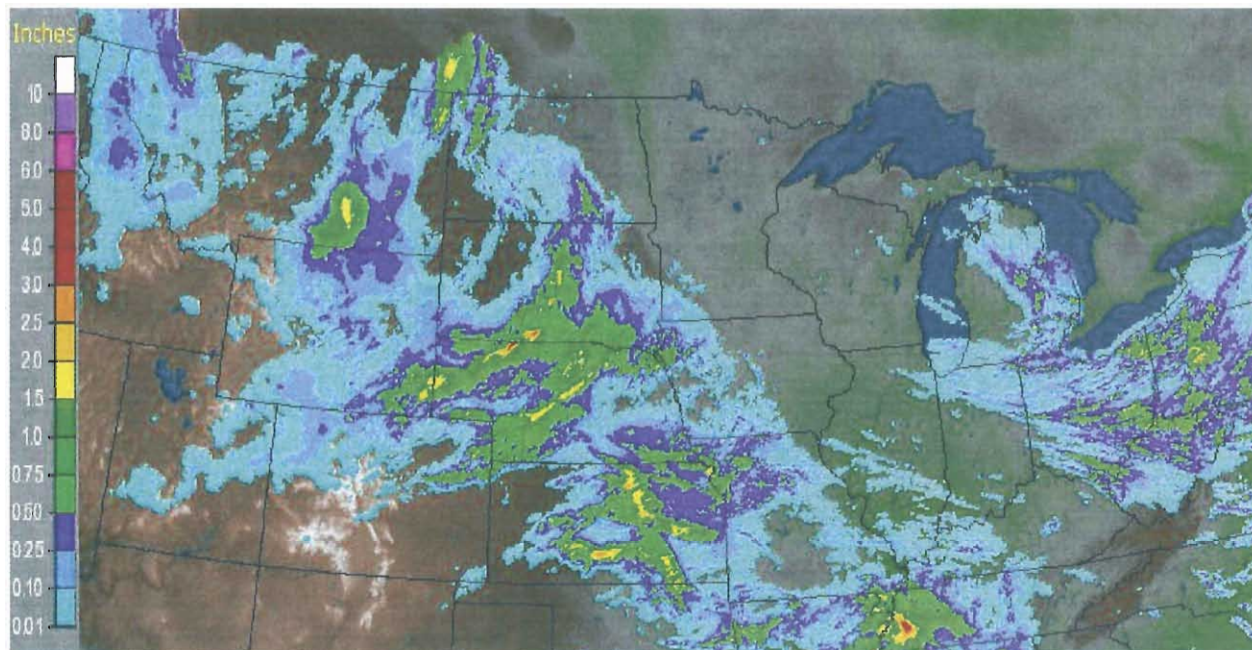


Figure 7. Rainfall on the Central Region of the United States for June 17, 2011.



[REDACTED] NWO

---

From: [REDACTED] NWO  
Sent: Friday, June 17, 2011 11:55 AM  
To: [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
Cc: [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] S NWO; [REDACTED] NWO  
Subject: RE: Senate Ag Committee Request

That was my first referral, and they looked at them but the translation into acres was their roadblock.

-----Original Message-----

From: [REDACTED] NWO  
Sent: Friday, June 17, 2011 11:54 AM  
To: [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
Cc: [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWO  
Subject: Re: Senate Ag Committee Request

We have our inundation maps, but that would be our first best guess.

I saw quote in the paper the other day. You might want to check the source of that article.

----- Original Message -----

From: [REDACTED] NWO  
To: [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
Cc: [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] NWO; [REDACTED] NWO  
Sent: Fri Jun 17 09:43:38 2011  
Subject: Senate Ag Committee Request

All: Received a request from the Senate Ag Committee asking for any general guidance, estimates or ranges that we could provide regarding the estimated number of acres of farmland that is expected to be flooded along the MO River.

Who can help me with this?

Thanks,

[REDACTED]  
Chief of Planning  
Congressional Liaison  
US Army Corps of Engineers  
Omaha District  
1616 Capitol Avenue  
Omaha, NE 68102-4901  
[REDACTED] (o)  
[REDACTED] (c)

**NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Friday, June 17, 2011 11:54 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] S NWO; Johnson, Greg NWO  
**Subject:** Re: Senate Ag Committee Request

We have our inundation maps, but that would be our first best guess.

I saw quote in the paper the other day. You might want to check the source of that article.

----- Original Message -----

**From:** [REDACTED] NWO  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
**Cc:** Streckfuss, Ted H NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED] NWO; Johnson, Greg NWO  
**Sent:** Fri Jun 17 09:43:38 2011  
**Subject:** Senate Ag Committee Request

All: Received a request from the Senate Ag Committee asking for any general guidance, estimates or ranges that we could provide regarding the estimated number of acres of farmland that is expected to be flooded along the MO River.

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Thanks,

[REDACTED]  
Chief of Planning  
Congressional Liaison  
US Army Corps of Engineers  
Omaha District  
1616 Capitol Avenue  
Omaha, NE 68102-4901  
[REDACTED] (o)  
[REDACTED] (c)

[REDACTED] NWO

---

**From:** [REDACTED] A NWO  
**Sent:** Friday, June 17, 2011 11:44 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
NWO  
**Cc:** [REDACTED] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [REDACTED]  
S NWO; [REDACTED] NWO  
**Subject:** Senate Ag Committee Request  
**Importance:** High

All: Received a request from the Senate Ag Committee asking for any general guidance, estimates or ranges that we could provide regarding the estimated number of acres of farmland that is expected to be flooded along the MO River.

Who can help me with this?

Thanks,

[REDACTED]  
Chief of Planning  
Congressional Liaison  
US Army Corps of Engineers  
Omaha District  
1616 Capitol Avenue  
Omaha, NE 68102-4901

[REDACTED] (o)  
[REDACTED] (c)

NWO

From: [REDACTED] NWD02  
Sent: Friday, June 17, 2011 10:42 AM  
To: DLL-CENWD-PDR; [REDACTED] NWO  
Subject: Friday Rain Report

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC  
DATE=Jun 17, 2011 - 14:02:15  
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>>>>>>> PAGESIZE 60

>>>>>>> DUMPPP24 \* \*

0\*\*NOTE\*\* DATA FOR THE PERIOD 06/17/2011-12Z THROUGH 06/17/2011-12Z WILL BE PROCESSED.  
QUANTITY DESC (0.01)  
OBONLY  
END

0PP24 DATA FOR 06/17/11-12Z THRU 06/17/11-12Z

0 - = MISSING VALUE OR SUM E = ESTIMATED VALUE P = PARTIAL SUM

STATION ID	DESCRIPTION	STATE	06/17	PERIOD SUM
LBF	NORTH PLATTE AIRPORT	NE	2.28	2.29
NPTN1	NORTH PLATTE	NE	2.13E	2.14
NPLN1	NO PLATTE EXP FARM	NE	2.11	2.12
NPAN1	NORTH PLATTE 10S	NE	1.97E	1.98
HERN1	HERSHEY 5SSE	NE	1.96E	1.97
EPRK1	EMPORIA 3NW	KS	1.76	1.76
MITN1	MITCHELL 5E	NE	1.73E	1.74
UFMN1	MITCHELL 6ENE	NE	1.73	1.74
MSPM8	MOSS PEAK	MT	1.70	1.71
NEWK1	NORWAY	KS	1.67	1.67
AMCK1	AMERICUS 2S	KS	1.64E	1.64
CFTK1	CLIFTON	KS	1.64	1.64
TYLN1	TAYLOR	NE	1.62E	1.63
TAYN1	TAYLOR	NE	1.62	1.63
CNKK1	CONCORDIA, REPUB R	KS	1.60	1.61
CONK1	CONCORDIA 1W	KS	1.53E	1.53
PLYK1	PLYMOUTH 1SW	KS	1.52E	1.52
CNK	CONCORDIA	KS	1.51	1.51
EMP	EMPORIA	KS	1.50	1.50
NOIM8	NOISY BASIN	MT	1.50	1.50
MCI	KANSAS CITY INTL AP	MO	1.41	1.41
BLVK1	BELLEVILLE	KS	1.40	1.40
MICN1	MITCHELL, N PLATTE R	NE	1.40E	1.40
CLDK1	CLYDE, ELK CR	KS	1.39E	1.39
NEOK1	NEOSHA RAPIDS	KS	1.39E	1.39
NRPK1	NEOSHO RAPIDS	KS	1.39E	1.39
HUSK1	HUSCHER	KS	1.37E	1.38
BFF	SCOTTSBLUFF	NE	1.37	1.38
GERN1	GERING 1NW	NE	1.36E	1.37
SCFN1	SCOTTSBLUFF 2NNE	NE	1.36E	1.37
SBFN1	SCOTTSBLUFF 3SW	NE	1.36	1.37
CYDK1	CLYDE	KS	1.34E	1.35
JMSK1	JAMESTOWN, BUFFALO C	KS	1.34E	1.35
SCBN1	SCOTTSBLUFF 1E	NE	1.34	1.35



DERN1	SCOTTSBLUFF 2WNW	NE	1.34E	1.35
WMM8	WYOLA 11E	MT	1.32	1.33
BSBM8	BUSBY	MT	1.28E	1.28
LINC004	HERSHEY 6NW	NE	1.28E	1.28
LEBK1	LEBO	KS	1.27	1.27
TLRN1	TAYLOR 12NE	NE	1.27E	1.27
ONIS2	ONIDA 7NE	SD	1.22	1.23
SNY	SIDNEY AIRPORT	NE	1.21	1.22
AAO	WICHITA	KS	1.21	1.22
NTCM7	KANSAS CITY 1SE	MO	1.20E	1.21
WTCM7	KANSAS CITY NWSTC	MO	1.20E	1.21
SDYN1	SIDNEY 2S	NE	1.20E	1.21
STAM8	STAHL PEAK	MT	1.20	1.21
WLFN1	WELLFLEET	NE	1.20E	1.21

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1

- 03/20/07) USER=MBRFC

DATE=Jun 17, 2011 - 14:02:15

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STATION				PERIOD
ID	DESCRIPTION	STATE	06/17	SUM
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RSL	RUSSELL 1E	KS	1.19	1.20
SCDK1	SCANDIA	KS	1.18E	1.18
SINN1	SIDNEY 1SSE	NE	1.17E	1.17
LINC036	SUTHERLAND 1N	NE	1.15E	1.15
SRGN1	SARGENT	NE	1.13E	1.13
LINC033	SUTHERLAND 1NW	NE	1.12E	1.13
LDGM8	LODGE GRASS	MT	1.11E	1.12
SNDK1	SCANDIA, REPUBLICAN	KS	1.10E	1.11
VTN	VALENTINE	NE	1.09	1.10
BRAN1	BRADY 1S	NE	1.08E	1.09
BDYN1	BRADY, PLATTE R	NE	1.08E	1.09
SCOT022	MITCHELL 2WNW	NE	1.08E	1.09
VTNN1	VALENTINE 4SSE	NE	1.08E	1.09
SIOI4	SIOUX CITY, PERRY CR	IA	1.05	1.05
KSDM7	STADIUM DR, BLUE R	MO	1.04	1.04
BRLN1	BURWELL, CALAMUS R	NE	1.03E	1.03
KSYM7	KANSAS CITY 40 HWY	MO	1.02E	1.02
AGNK1	AGENDA	KS	1.00	1.00
RUEK1	RUSSELL 7E	KS	1.00E	1.00
SSTM7	SHARPS STATION	MO	0.99E	1.00
SSZM7	SHARPS STATION GDDS	MO	0.99E	1.00
TMGM7	KANSAS CITY 4NW	MO	0.98E	0.99
SPKN1	SPARKS, NIOBRARA R	NE	0.98E	0.99
FLMW4	FORT LARAMIE CANAL	WY	0.97	0.98
PLSM7	PLEASANT HILL 1E	MO	0.97	0.98
SOUI4	SIOUX CITY 8N	IA	0.97E	0.98
PTM7	PLATTE CITY (DNR)	MO	0.96	0.96
AURK1	AURORA	KS	0.95E	0.95
GARK1	GARNETT 1E	KS	0.95	0.95
ALCN1	ALLIANCE 8SSW	NE	0.94	0.94
SXNI4	JAMES 4W	IA	0.94E	0.94
MSSS2	MISSION	SD	0.94	0.94
SHPK1	SHARPE 3E	KS	0.94	0.94
WYLM8	WYOLA 1SW	MT	0.94E	0.94
RSO1	ROSCOE, SO PLATTE R	NE	0.93	0.94
GGBS2	GETTYSBURG 10SW	SD	0.92E	0.93
WILK1	WILSEY	KS	0.92	0.93

WFCN8	WATFORD CITY	ND	0.91E	0.92
WTDN8	WATFORD CITY	ND	0.91	0.92
BUNK1	BUNKER HILL 7SW	KS	0.90E	0.90
JRLK1	BURLINGTON 3N	KS	0.90E	0.90
FTMM8	FLATTOP MOUNTAIN	MT	0.90	0.90
FTNM8	FLATTOP MTN SNT	MT	0.90E	0.90
SLMN1	SALEM 5SW	NE	0.90	0.90
WCYN8	WATFORD CITY 1S	ND	0.90E	0.90
BGSN1	BIG SPRINGS	NE	0.89	0.89
CCRK1	CLAY CENTER	KS	0.89	0.89
CLAK1	CLAY CENTER #1	KS	0.88E	0.88
CYCK1	CLAY CENTER, REPUB R	KS	0.88E	0.88
CHER007	VALENTINE 10WNW	NE	0.88E	0.88
WKEK1	WAKEFIELD 4W	KS	0.87	0.88
DSPK1	BURDICK	KS	0.86E	0.87
PXTN1	PAXTON KORTY POWER	NE	0.85E	0.86

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC

DATE=Jun 17, 2011 - 14:02:15

0

STATION				PERIOD
ID	DESCRIPTION	STATE	06/17	SUM
-----	-----	----	-----	-----
BRK1	BURLINGTON	KS	0.84E	0.84
CUBK1	CUBA	KS	0.84E	0.84
SUX	SIOUX CITY	IA	0.84	0.84
DIK1	DIAMOND SPRINGS	KS	0.83E	0.83
SSCN1	SOUTH SIOUX CITY	NE	0.83E	0.83
GTOM8	GOAT HAUNT MOUNTAIN	MT	0.82E	0.82
PVRN1	PLAINVIEW RANCH	NE	0.82E	0.82
CUST015	ANSELMO 9NW	NE	0.81E	0.81
CHMN1	CHAMBERS	NE	0.81	0.81
EMDK1	ELMDALE 3NE	KS	0.81E	0.81
CHEY037	SIDNEY 14WSW	NE	0.81E	0.81
LINC027	STAPLETON 8SSE	NE	0.81E	0.81
CRCN1	CARPENTER RANCH	NE	0.80	0.81
LNBM8	LINDBERGH LAKE	MT	0.80E	0.81
STTM8	STUART MOUNTAIN	MT	0.80	0.81
TESK1	TESCOTT	KS	0.80	0.81
DKRM8	TONGUE RIVER DAM	MT	0.80E	0.81
AGAN1	AGATE 3E	NE	0.79E	0.80
CUST014	ANSELMO 12WSW	NE	0.79E	0.80
BNKN1	BENKELMAN	NE	0.79	0.80
TSCK1	TESCOTT, SALINE R	KS	0.79E	0.80
AGTN1	AGATE 3ENE RAWS	NE	0.78E	0.78
BENN1	BENKELMAN 1SW	NE	0.78E	0.78
IAB	MCCONNELL AFB	KS	0.78	0.78
ONLN1	ONEILL	NE	0.78	0.78
RDGK1	READING 2N	KS	0.78E	0.78
SXGI4	SIOUX CITY	IA	0.78	0.78
WATN8	WATFORD CITY 14S	ND	0.78	0.78
BEKN1	BENKELMAN 2SSW	NE	0.77E	0.77
CUST004	GOTHENBURG 15NNW	NE	0.77E	0.77
HSYN1	HALSEY 2W	NE	0.77	0.77
PCHI4	HINTON 4W, PERRY CR	IA	0.77E	0.77
KWAM7	KANSAS CTY WILSON AV	MO	0.76E	0.76
MLVK1	MELVERN DAM 1E	KS	0.76E	0.76
MNTN1	MINATARE, NO PLATTE	NE	0.76E	0.76

HOMN1	HOMER 3NE	NE	0.75E	0.75
JMEI4	JAMES 1NE, FLOYD R	IA	0.75E	0.75
KIGN1	KILGORE 1NE	NE	0.75	0.75
MSNS2	MISSION 14S	SD	0.75E	0.75
TOR	TORRINGTON	WY	0.75	0.75
TORW4	TORRINGTON 2NW	WY	0.75E	0.75
DOGS2	HE DOG LAKE	SD	0.74E	0.75
KBPM7	KANSAS CTY BLUE PKWY	MO	0.74E	0.75
POLM7	POLO	MO	0.74	0.75
PIPS2	BELVIDERE 6SE	SD	0.73	0.74
MDDN1	MADRID	NE	0.72	0.73
OKES2	OKREEK 4SSW	SD	0.72E	0.73
SKLM8	SKYLARK TRAIL	MT	0.72E	0.73
BWLN1	BURWELL	NE	0.71E	0.71
KCWM7	KC (NEW SANTA FE)	MO	0.71	0.71
LAWI4	LAWTON	IA	0.71E	0.71
MRLN1	MORRILL WELL	NE	0.71E	0.71
PTTM7	PATTONSBURG 2S	MO	0.71	0.71

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PHLM7	PLEASANT HILL	MO	0.71E	0.71
PLHM7	PLEASANT HILL MBRFC	MO	0.71	0.71
SABK1	SABETHA	KS	0.71E	0.71
YDRW4	YODER 5W	WY	0.71E	0.71
ANSN1	ANSELMO 2SE	NE	0.70E	0.70
GLLM7	GALLATIN 1W	MO	0.70	0.70
HMLM7	HAMILTON 2W	MO	0.70	0.70
HANM8	HAND CREEK	MT	0.70	0.70
MLLK1	MILLER 4SSW	KS	0.70	0.70
NFJM8	NORTH FORK JOCKO	MT	0.70	0.70
OKRS2	OKREEK 4W	SD	0.70E	0.70
PATM7	PATTONSBURG, GRAND R	MO	0.70E	0.70
HAWM8	TROY 34N	MT	0.70	0.70
ANGN1	ANGORA 8NE	NE	0.69E	0.69
BIRM8	BIRNEY	MT	0.69E	0.69
DECM8	DECKER	MT	0.69E	0.69
DUNK1	DUNLAP 2N	KS	0.69E	0.69
LAGW4	LA GRANGE	WY	0.69E	0.69
PRMS2	PARMELEE 6W	SD	0.69E	0.69
PAES2	PARMELEE 7SSW	SD	0.69E	0.69
CHEY035	SIDNEY 7W	NE	0.69E	0.69
YYC	CALGARY	AB	0.68	0.69
SWNN1	CHAMBERS 18W	NE	0.68E	0.69
CODN1	CODY	NE	0.68E	0.69
GRDN1	GORDON 3W	NE	0.68	0.69
CUST020	GOTHENBURG 24N	NE	0.68E	0.69
MNDM7	MENDON, HICKORY BR	MO	0.68E	0.69
ODAS2	ONIDA 4NW	SD	0.68E	0.69
PAMS2	PARMELEE 7SSW	SD	0.68E	0.69
STJ	ST JOSEPH 4WNW	MO	0.68	0.69
ALYN8	ASHLEY	ND	0.67	0.68
CAMM7	CAMERON	MO	0.67	0.68
CAXM7	CARROLLTON, WAKENDA C	MO	0.67	0.68

WYGS16	LA GRANGE 4ESE	WY	0.67	0.68
LNGW4	LINGLE, RAWHIDE CR	WY	0.67E	0.68
MVNK1	MELVERN 2W	KS	0.67E	0.68
ALAN1	ALLIANCE 1WNW	NE	0.66E	0.67
GAZM7	GALLATIN, GRAND R	MO	0.66E	0.67
LNCK1	LINCOLNVILLE	KS	0.66E	0.67
MLKN1	MURRAY LAKE	NE	0.66E	0.67
STAN1	STAPLETON 5W	NE	0.66	0.67
CWYN1	CALLAWAY 8WSW	NE	0.65	0.65
PERK018	GRANT 8WSW	NE	0.65E	0.65
LEVK1	LEAVENWORTH	KS	0.65E	0.65
LVNK1	LEAVENWORTH	KS	0.65	0.65
PIR	PIERRE REGIONAL AP	SD	0.65	0.65
BLKM7	BLUE LICK	MO	0.64	0.64
BRMK1	BREMEN 1E	KS	0.64	0.64
BUFW4	BUFFALO	WY	0.64	0.64
BSHK1	BUSHONG 5W	KS	0.64E	0.64
WYSH10	CLEARMONT 5NNE	WY	0.64	0.64
CTLK1	COURTLAND	KS	0.64	0.64
UTCK1	UTICA	KS	0.64	0.64

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DSLM8	DECKER 2SE	MT	0.63E	0.63
DLPK1	DUNLAP 2N	KS	0.63E	0.63
GORN1	GORDON 6N	NE	0.63E	0.63
HRSK1	HARRIS 3SSW	KS	0.63E	0.63
RCKM7	INDEPENDENCE, ROCK CR	MO	0.63E	0.63
LERK1	LE ROY	KS	0.63E	0.63
EWK	NEWTON AIRPORT	KS	0.63E	0.63
WSCS2	ONIDA 15NW	SD	0.63E	0.63
BLVM7	BLUE LICK, BLACKWATER	MO	0.62E	0.63
BSHM8	BRADSHAW CREEK RAW	MT	0.62	0.63
IDAC2	IDALIA	CO	0.62	0.63
LGFK1	LONGFORD	KS	0.62E	0.63
MHDM8	MOORHEAD, POWDER R	MT	0.62	0.63
SWAN1	SWAN LAKE	NE	0.62E	0.63
ICT	WICHITA	KS	0.62	0.63
GLAM7	GLADSTONE	MO	0.61E	0.62
JKSN1	JACKSON	NE	0.61E	0.62
WYJN13	KAYCEE 17NNW	WY	0.61	0.62
SLNK1	SALINA, MULBERRY CR	KS	0.61	0.62
WACN8	WATFORD CITY 12E	ND	0.61E	0.62
FHFM8	ASHLAND 12SSE	MT	0.60	0.61
BYG	BUFFALO(COUNTY ARPT)	WY	0.60	0.61
HRSN1	CHADRON 6S RAW	NE	0.60	0.61
CLRW4	CLEARMONT 5SW	WY	0.60E	0.61
FLAW4	FT LARAMIE 5SSW	WY	0.60E	0.61
FTPS2	FT PIERRE 3S, BAD R	SD	0.60E	0.61
KNXM7	KNOXVILLE	MO	0.60E	0.61
LSBK1	LINDSBORG	KS	0.60	0.61
LNSK1	LINDSBORG, SMOKY HILL	KS	0.60E	0.61
LOT2	LOST DOG	CO	0.60	0.61
NLSK1	NILES, SOLOMON R	KS	0.60E	0.61

OFLW4	OLD FORT LARAMIE	WY	0.60	0.61
PHMS2	PIERRE	SD	0.60E	0.61
ROSN1	ROSE 10WNW	NE	0.60E	0.61
MCSK1	SHAWNEE, MILL CR	KS	0.60	0.61
SIDN1	SIDNEY 6NNW	NE	0.60E	0.61
ADAK1	ADA 3ESE, SALT CR	KS	0.59E	0.59
DFTN1	DUTCH FLATS WELL	NE	0.59E	0.59
EGTM7	EDGERTON	MO	0.59E	0.59
MCGN1	MCGREW 4WNW	NE	0.59E	0.59
ZRSK1	UTICA 4NE	KS	0.59E	0.59
BLNS2	BLUNT 6E	SD	0.58E	0.58
BUTN1	BUTTE	NE	0.58	0.58
CNVK1	CENTERVILLE 4SW	KS	0.58	0.58
CDR	CHADRON	NE	0.58	0.58
CHDN1	CHADRON 3SW	NE	0.58E	0.58
WYSH11	CLEARMONT 9WSW	WY	0.58E	0.58
CTSN1	CURTIS 3NNE	NE	0.58E	0.58
TFCM7	KC TOWN FORK CREEK	MO	0.58E	0.58
LRYK1	LEROY	KS	0.58E	0.58
PARN1	PARKS 17N	NE	0.58	0.58
RUSN1	RUSHVILLE	NE	0.58E	0.58
SELM8	SEELEY LAKE	MT	0.58E	0.58

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KSJ016	SHAWNEE 4E	KS	0.58E	0.58
SMHM7	SMITHVILLE	MO	0.58E	0.58
SJSM7	ST JOSEPH, MISSOURI	MO	0.58E	0.58
ABLK1	ABILENE	KS	0.57E	0.57
AGRN1	ANGORA 1WNW	NE	0.57E	0.57
CDNN1	CHADRON	NE	0.57E	0.57
WBMN1	CHADRON 3NE	NE	0.57E	0.57
SLKM7	SMITHVILLE DAM	MO	0.57	0.57
SETM7	STET 1S	MO	0.57E	0.57
HSBN1	HARRISBURG 12WNW	NE	0.56E	0.56
HBLN1	HUMBOLDT	NE	0.56E	0.56
HOLT008	PAGE 5WNW	NE	0.56E	0.56
SPCN1	SPENCER, NIOBRARA R	NE	0.56E	0.56
TNSW4	TEN SLEEP 16SSE	WY	0.56	0.56
TTNN1	TRENTON DAM	NE	0.56	0.56
WDLK1	WOODLAWN 2W	KS	0.56E	0.56
ABNW4	ALBIN #2	WY	0.55E	0.56
BELK1	BELOIT	KS	0.55	0.56
CMRM7	CAMERON 4NW	MO	0.55E	0.56
CRLM7	CARROLLTON	MO	0.55	0.56
ETPK1	ENTERPRISE	KS	0.55	0.56
ENTK1	ENTERPRISE	KS	0.55E	0.56
LYNN1	LYNCH	NE	0.55	0.56
MLFK1	MILFORD DAM	KS	0.55E	0.56
TBLN1	TABLE ROCK 4N	NE	0.55	0.56
ALBW4	ALBIN	WY	0.54E	0.55
ASHM8	ASHLAND RANGER STA	MT	0.54E	0.55
BASK1	BASEHOR 3NE	KS	0.54E	0.55
BKVK1	BROOKVILLE	KS	0.54E	0.55

BEVK1	BROOKVILLE	KS	0.54E	0.55
CDRS2	CEDAR BUTTE 1NE	SD	0.54E	0.55
DYTW4	DAYTON	WY	0.54	0.55
CHEY002	GURLEY 6SE	NE	0.54E	0.55
PRKM7	PARKVILLE 2N	MO	0.54E	0.55
PURN1	PURDUM	NE	0.54E	0.55
RDHK1	RANDOLPH 4WNW	KS	0.54E	0.55
RDPK1	RANDOLPH, FANCY CR	KS	0.54E	0.55
KEYA001	SPRINGVIEW 17WNW	NE	0.54E	0.55
9V2	TRENTON DAM 8SSW	NE	0.54E	0.55
TRYK1	TROY 3N	KS	0.54E	0.55
WAVK1	WAVERLY	KS	0.54E	0.55
AMEN1	AMELIA	NE	0.53E	0.53
WYSH12	DAYTON 12WNW	WY	0.53	0.53
HCHN1	HARRISBURG 10NW	NE	0.53	0.53
HRRM7	HARRISONVILLE	MO	0.53E	0.53
HEMN1	HEMINGFORD	NE	0.53E	0.53
HMG1	HEMINGFORD 10SW	NE	0.53E	0.53
LTRW4	LEITER 9N	WY	0.53E	0.53
LTTK1	LORETTA	KS	0.53	0.53
PIES2	OAHE DAM	SD	0.53E	0.53
PHIW4	PHILLIPS	WY	0.53E	0.53
ZPC	PINCHER CR	AB	0.53E	0.53
NEBS2	PINE RIDGE, WHITE R	SD	0.53E	0.53

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SPVN1	SPRINGVIEW	NE	0.53	0.53
WYGS2	TORRINGTON 5SSW	WY	0.53E	0.53
ROCK002	BASSETT 14SE	NE	0.52E	0.52
BNTS2	BLUNT	SD	0.52E	0.52
BLTS2	BLUNT 6E	SD	0.52E	0.52
BOXN1	BOX BUTTE DAM	NE	0.52E	0.52
BTWS2	BRENTWOOD COLONY	SD	0.52	0.52
ENSN1	ENDERS, FRENCHMAN CR	NE	0.52E	0.52
GRDK1	GRIDLEY	KS	0.52	0.52
IMPN1	IMPERIAL	NE	0.52	0.52
LUPN1	LOUP CITY, MID LOUP	NE	0.52	0.52
MTRK1	MENTOR, SMOKY HILL R	KS	0.52E	0.52
MNPK1	MINNEAPOLIS	KS	0.52	0.52
MPSK1	MINNEAPOLIS, SOLOMON	KS	0.52E	0.52
RAMM7	RAYMORE	MO	0.52	0.52
SMOK1	SMOLAN 1NE	KS	0.52E	0.52
STOW4	STORY	WY	0.52E	0.52
WLLN1	WALLACE 2W	NE	0.52E	0.52
ANW	AINSWORTH	NE	0.51E	0.51
BNLN1	BROWNLEE	NE	0.51E	0.51
GHOS2	GHOST HAWK LAKE	SD	0.51E	0.51
GURW4	GUERNSEY 2NW	WY	0.51E	0.51
GUEW4	GUERNSEY DAM	WY	0.51E	0.51
GYSK1	GYPSUM 4S, GYPSUM CR	KS	0.51	0.51
KNEN8	KEENE 3S	ND	0.51E	0.51
BAFM8	LAME DEER 6ENE	MT	0.51	0.51
MOON1	MOOREFIELD	NE	0.51E	0.51

NCMK1	NEW CAMBRIA 1SE	KS	0.51E	0.51
PAIN1	PALISADE	NE	0.51	0.51
IEN	PINE RIDGE	SD	0.51	0.51
PNES2	PINE RIDGE 2SE	SD	0.51E	0.51
SAGM7	RAYMORE	MO	0.51E	0.51
SJPM7	ST JOSEPH 4SE	MO	0.51E	0.51
WLBK1	WILLIAMSBURG	KS	0.51E	0.51
WYSH5	BANNER 4E	WY	0.50E	0.50
ROKW4	BUFFALO 12NW, ROCK C	WY	0.50	0.50
CLBS2	COLUMBIA 1W	SD	0.50	0.50
CMBM8	COMBINATION	MT	0.50	0.50
ENDN1	ENDERS DAM	NE	0.50E	0.50
HANK1	HANOVER 4S	KS	0.50E	0.50
HAYN1	HAYES CENTER 1NW	NE	0.50	0.50
HUBN1	HUBBELL	NE	0.50E	0.50
MKC	KANSAS CITY DWNTN AP	MO	0.50E	0.50
KCDM7	KC (HANNIBAL BRIDGE)	MO	0.50	0.50
WIXM7	MOBERLY (KWIX RADIO)	MO	0.50	0.50
PAXN1	PAXTON	NE	0.50E	0.50
RONM7	RAYMORE	MO	0.50E	0.50
SSPM7	SWEET SPRINGS	MO	0.50	0.50
WBSW4	WEBBER SPRINGS	WY	0.50	0.50
CNGS2	CANNING 1W	SD	0.49E	0.50
CMBS2	COLUMBIA 1S, JAMES R	SD	0.49E	0.50
HLTK1	HOLTON	KS	0.49	0.50
JMEM7	JAMESON (DNR)	MO	0.49	0.50

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3JC	JUNCTION CITY	KS	0.49E	0.50
LBEM7	LIBERTY 3NW	MO	0.49E	0.50
MRVK1	MARYSVILLE	KS	0.49E	0.50
MRYK1	MARYSVILLE, BIG BLUE	KS	0.49	0.50
ONAS2	ONIDA 25W	SD	0.49E	0.50
PKCN1	PARKS, ROCK CR	NE	0.49	0.50
PIRS2	PIERRE	SD	0.49E	0.50
RRSS2	ROSCO	SD	0.49E	0.50
ROSS2	ROSCOE	SD	0.49	0.50
SLN	SALINA	KS	0.49	0.50
SIPK1	SCIPPIO, POTTAWATOMIE	KS	0.49	0.50
VALN1	VALENTINE NWR	NE	0.49E	0.50
WAUN1	WAUNETA	NE	0.49E	0.50
WRVS2	WHITE RIVER	SD	0.49E	0.50
LWRS2	WHITE RIVER 2N	SD	0.49	0.50
ARCN1	ARCADIA	NE	0.48	0.48
BNSI4	BRONSON	IA	0.48E	0.48
COLM8	COLSTRIP	MT	0.48E	0.48
ELIN1	ELI	NE	0.48E	0.48
HAYE002	ELSIE 14SE	NE	0.48E	0.48
ELLN1	ELSMERE 9ENE	NE	0.48E	0.48
HOES2	HOSMER 9E	SD	0.48E	0.48
MAXN1	MAX 13N	NE	0.48E	0.48
MCCK1	MCCRACKEN	KS	0.48	0.48
ZUBK1	MCCRACKEN	KS	0.48E	0.48

BLKM8	BLACK PINE	MT	0.47E	0.47
FCTK1	FACT 3W	KS	0.47	0.47
FAXS2	FAIRFAX #2	SD	0.47E	0.47
HMRN1	HOMER, OMAHA CR	NE	0.47E	0.47
JUCK1	JUNCTION CITY 4SSW	KS	0.47E	0.47
PAHS2	KEYAPAHA, KEYAPAHA R	SD	0.47E	0.47
MRHM7	MARSHALL	MO	0.47	0.47
PERK1	PFEIFER	KS	0.47E	0.47
PFRK1	PFEIFER, SMOKY HILL	KS	0.47E	0.47
RCSW4	RECLUSE 18N	WY	0.47E	0.47
SODM7	ST JOE WHITHD (4)	MO	0.47E	0.47
BLMK1	BLUE MOUND	KS	0.46E	0.47
IML	IMPERIAL	NE	0.46	0.47
VRFN1	VALENTINE 27SSE RAWS	NE	0.46E	0.47
VRGN1	VIRGINIA 4SSE	NE	0.46E	0.47
WGLM8	WEST GLACIER 1N	MT	0.46	0.47
SFD	WINNER AIRPORT	SD	0.46E	0.47
ICR	WINNER AIRPORT	SD	0.46E	0.47
ZIRC2	ZIRKEL	CO	0.46E	0.47
BRPK1	BLUE RAPIDS	KS	0.45	0.45
BLRK1	BLUE RAPIDS	KS	0.45E	0.45
GARF005	BURWELL 20NE	NE	0.45E	0.45
DAWN1	DAWSON 3ENE	NE	0.45E	0.45
GTYS2	GETTYSBURG 13W	SD	0.45E	0.45
HBGK1	HOLLENBERG, LTL BLUE	KS	0.45E	0.45
TUNMB	PECULIAR 2SW	MO	0.45E	0.45
PECM7	PECULIAR 3SW	MO	0.45E	0.45
SFSW4	SHERIDAN 7NW	WY	0.45E	0.45

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SYLK1	SYLVAN GROVE 1NE	KS	0.45 0.45
ATKN1	ATKINSON 3SW	NE	0.44E 0.44
BARK1	BARNES	KS	0.44E 0.44
CUST022	BERWYN 4NNE	NE	0.44E 0.44
BLYW4	BILLY CREEK	WY	0.44E 0.44
BONS2	BONESTEEL	SD	0.44E 0.44
CENK1	CENTRALIA	KS	0.44E 0.44
GOSN1	GROSS 1E	NE	0.44E 0.44
HLBK1	HILLSBORO	KS	0.44 0.44
HLSK1	HILLSDALE 3SW	KS	0.44 0.44
KSJO10	LENEXA 2NE	KS	0.44E 0.44
LLLK1	LILLIS	KS	0.44 0.44
MOFSA175	MOBERLY 3N	MO	0.44E 0.44
MORM8	MOORHEAD 9NE	MT	0.44E 0.44
OLDW4	OLD BATTLE	WY	0.44E 0.44
PALN1	PALISADE, FRENCHMAN	NE	0.44 0.44
ARNN1	ARNOLD	NE	0.43E 0.44
LLKS2	EUREKA 13NE RAWS	SD	0.43E 0.44
FSTK1	FOSTORIA 7NW	KS	0.43E 0.44
FKFK1	FRANKFORT, BLACK VERM	KS	0.43E 0.44
GOTN1	GOTHENBURG	NE	0.43E 0.44
HILK1	HILLSDALE LAKE	KS	0.43E 0.44
HSMM8	HYSHAM 25SSE	MT	0.43E 0.44



KBRM7	KC BLUE RIDGE BLVD	MO	0.43	0.44
LTGW4	LITTLE GOOSE CREEK	WY	0.43	0.44
LOUK1	LOUISVILLE 5NE	KS	0.43E	0.44
MLTK1	MILTONVALE	KS	0.43	0.44
ROCK004	NEWPORT 11S	NE	0.43E	0.44
PRLK1	PARALLEL	KS	0.43E	0.44
PTRI4	PETERSON,LTL SIOUX R	IA	0.43	0.44
PMNK1	POMONA 2S	KS	0.43E	0.44
WYSH13	SHERIDAN 11SSE	WY	0.43E	0.44
WHBW4	WHALEN DAM	WY	0.43E	0.44
WHAW4	WHALEN DAM (USBR)	WY	0.43E	0.44
WUDS2	WOOD	SD	0.43E	0.44
KCRW4	ELK MNT 12ESE ROCK C	CO	0.42	0.42
FRKK1	FRANKFORT	KS	0.42E	0.42
GTTS2	GETTYSBURG	SD	0.42E	0.42
GRBN8	GRASSY BUTTE 2ENE	ND	0.42E	0.42
KANK1	KANOPOLIS DAM	KS	0.42E	0.42
LGLK1	LANGLEY, SMOKY HILL	KS	0.42	0.42
MCK	MCCOOK	NE	0.42	0.42
MKRN1	MCCOOK, REPUBLICAN R	NE	0.42E	0.42
MCFK1	MCFARLAND	KS	0.42	0.42
OPFK1	O P #1400 (WATFD PL)	KS	0.42E	0.42
OCNN1	OCONTO	NE	0.42E	0.42
ORGM7	OREGON	MO	0.42E	0.42
PRRK1	PERRY LAKE	KS	0.42	0.42
RICM7	RICHMOND, CROOKED R	MO	0.42E	0.42
RSBS2	ROSEBUD 6N	SD	0.42E	0.42
SHBW4	SHERIDAN, GOOSE CR	WY	0.42	0.42
TYRN1	TRYON 15NW	NE	0.42E	0.42
WAMK1	WAMEGO 4W	KS	0.42	0.42

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ID	DESCRIPTION	STATE	06/17	PERIOD SUM
BEAK1	BEATTIE 2NNW	KS	0.41	0.41
CHPK1	CHAPMAN, CHAPMAN CR	KS	0.41E	0.41
EWDK1	EDWARDSVILLE 3NNW	KS	0.41E	0.41
GLAK1	GLASCO, SOLOMON R	KS	0.41E	0.41
MHK	MANHATTAN MUNICPL AP	KS	0.41	0.41
MCXN1	MCCOOK	NE	0.41E	0.41
MOKN1	MCCOOK 17NNW	NE	0.41E	0.41
P28	MEDICINE LODGE 2E	KS	0.41E	0.41
CUST021	MERNA 11W	NE	0.41E	0.41
NORN1	NORDEN 6S	NE	0.41E	0.41
PLKK1	POMONA DAM GDDS	KS	0.41	0.41
QUEK1	QUENEMO 5NW	KS	0.41E	0.41
WCRN1	SCOTTSBLUFF 10NE	NE	0.41E	0.41
SHLW4	SHELL 1NE	WY	0.41	0.41
WHKN8	WISHEK	ND	0.41E	0.41
BRNK1	BARNARD, SALT CR	KS	0.40	0.41
BANK1	BARNES, LTL BLUE R	KS	0.40	0.41
BLON1	BLOOMFIELD	NE	0.40	0.41
BRKN1	BROKEN BOW #2	NE	0.40E	0.41
BBW	BROKEN BOW 2W	NE	0.40	0.41
BKNN1	BROKEN BOW 2W	NE	0.40E	0.41

CSPW4	CASPER MOUNTAIN	WY	0.40	0.41
CNYK1	COLONY	KS	0.40E	0.41
DUBN1	DUBOIS	NE	0.40E	0.41
GLCK1	GLASCO	KS	0.40E	0.41
GRCM8	GRAVE CREEK	MT	0.40	0.41
HARN1	HARDY	NE	0.40E	0.41
HDYN1	HARDY, REPUBLICAN R	NE	0.40E	0.41
PINS2	INTERIOR 15SW RAWS	SD	0.40E	0.41
LMRN1	LAMAR 3SSE	NE	0.40E	0.41
ZUGK1	MCCRACKEN	KS	0.40E	0.41
NZCM8	NEZ PERCE CAMP	MT	0.40	0.41
PKRS2	PARKER, WEST FORK	SD	0.40	0.41
PTRN1	POTTER	NE	0.40E	0.41
RWCN1	RED WILLOW (BLO DAM)	NE	0.40E	0.41
ERVW4	RIVERSIDE	WY	0.40E	0.41
CHYK1	SAINT FRANCIS	KS	0.40E	0.41
SNLW4	SAND LAKE	WY	0.40	0.41
SDRW4	SAND LAKE RESERVOIR	WY	0.40E	0.41
SRSW4	SANDSTONE	WY	0.40	0.41
WYSH1	SHERIDAN 1N	WY	0.40E	0.41
WYSH14	SHERIDAN 2NW	WY	0.40E	0.41
SHFM8	SHOWER FALLS	MT	0.40	0.41
SYF	ST FRANCIS	KS	0.40E	0.41
SFCK1	ST FRANCIS	KS	0.40E	0.41
SRRN1	SUPERIOR 4E	NE	0.40	0.41
DDEW4	TORRINGTON 29N	WY	0.40	0.41
WMAK1	WASHINGTON	KS	0.40	0.41
ALIN1	ALLIANCE 1WNW	NE	0.39E	0.39
BLYK1	BAILEYVILLE	KS	0.39	0.39
CHLK1	CHALK	KS	0.39E	0.39
CPMK1	CHAPMAN	KS	0.39E	0.39
EUSN1	EUSTIS 2NW	NE	0.39	0.39

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GTAK1	GALATIA 4E	KS	0.39	0.39
0429N8	LEHR 4S	ND	0.39E	0.39
OELS2	OELRICHS	SD	0.39E	0.39
HHDS2	OELRICHS, HORSEHEAD C	SD	0.39	0.39
OLEK1	OLATHE 2W	KS	0.39	0.39
PAOK1	PAOLA	KS	0.39E	0.39
SONM8	SONNETTE 2WNW	MT	0.39E	0.39
SOWN1	SOWDERS RANCH	NE	0.39E	0.39
SOAM7	ST JOE RIPLEY (1)	MO	0.39E	0.39
STWK1	STILWELL	KS	0.39E	0.39
SLYK1	STILWELL 1N	KS	0.39	0.39
SREN8	STREETER 5NW	ND	0.39	0.39
STRN8	STREETER 5NW	ND	0.39E	0.39
AERK1	ALEXANDER 4W	KS	0.38E	0.38
BKNK1	BAZINE 6NW	KS	0.38E	0.38
CSRN1	CASTLE ROCK	NE	0.38E	0.38
CNGK1	COUNCIL GROVE DAM	KS	0.38	0.38
DURK1	DURHAM	KS	0.38E	0.38
GEY	GREYBULL	WY	0.38	0.38

HBCN1	HAIGLER, BUFFALO CR	NE	0.38	0.38
HIAK1	HIAWATHA 9ESE	KS	0.38E	0.38
LYDK1	LYNDON 3ENE	KS	0.38E	0.38
LNDK1	LYNDON 3ENE	KS	0.38E	0.38
MARS2	MARION	SD	0.38E	0.38
MCON1	MCCOOK #2	NE	0.38E	0.38
MERN1	MERRIMAN	NE	0.38E	0.38
OTWK1	OTTAWA	KS	0.38E	0.38
OTTK1	OTTAWA	KS	0.38	0.38
PAWN1	PAWNEE CITY	NE	0.38E	0.38
PXCK1	PAXICO 1SW, MILL CR	KS	0.38E	0.38
PLTM7	PLATTSBURG	MO	0.38E	0.38
LPPM7	PLATTSBURG 2E	MO	0.38E	0.38
RAYM7	RAYTOWN	MO	0.38E	0.38
SPBM8	SPOTTED BEAR RAWS	MT	0.38E	0.38
SAJM7	ST JOSEPH	MO	0.38E	0.38
WGOK1	WAMEGO	KS	0.38E	0.38
WMGK1	WAMEGO #2, KANSAS R	KS	0.38E	0.38
AXDN1	ALEXANDRIA,BIG SANDY	NE	0.37	0.38
AIA	ALLIANCE	NE	0.37E	0.38
ALVK1	ALTA VISTA	KS	0.37E	0.38
KSMC2	BELOIT 8ESE	KS	0.37E	0.38
BNYC2	BONNY DAM	CO	0.37E	0.38
JEFF002	FAIRBURY 9WSW	NE	0.37E	0.38
STEN1	HAIGLER, NF REPUB R	NE	0.37E	0.38
K87	HIAWATHA 5SSE	KS	0.37E	0.38
IPSS2	IPSWICH	SD	0.37E	0.38
KMBN1	KIMBALL 2NE	NE	0.37	0.38
LAWK1	LAWRENCE, WAKARUSA R	KS	0.37	0.38
LOVK1	LOVEWELL DAM	KS	0.37E	0.38
P69	LOWELL	ID	0.37	0.38
MCKN1	MCCOOK, DRIFTWOOD CR	NE	0.37E	0.38
MCPK1	MCPHERSON	KS	0.37E	0.38
ORDN1	ORD, NORTH LOUP R	NE	0.37	0.38

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PSPN1	PONCA STATE PARK	NE	0.37E	0.38
PRIM7	PRAIRIE HILL 2WNW	MO	0.37	0.38
RCMM7	RICHMOND 3S	MO	0.37	0.38
SSKW4	RIVERSIDE, SPRING CR	WY	0.37E	0.38
SPLW4	SPLIT ROCK CREEK	WY	0.37	0.38
0423N8	VENTURA 4NW	ND	0.37E	0.38
VNOC2	VERNON 4E	CO	0.37E	0.38
WEWS2	WEWELA 1N	SD	0.37	0.38
WORK1	WORDEN	KS	0.37E	0.38
AGAS2	AGAR 3N	SD	0.36E	0.37
ALXN1	ALEXANDRIA 3S	NE	0.36E	0.37
ALTI4	ALTON, FLOYD R	IA	0.36E	0.37
BETM7	BELTON	MO	0.36E	0.37
BHRW4	BIG HORN	WY	0.36	0.37
RPKW4	BIG HORN 10WSW	WY	0.36E	0.37
BVKW4	BIG HORN 4W	WY	0.36	0.37
BLNK1	BLAINE	KS	0.36E	0.37

FRBN1	FAIRBURY, LTL BLUE R	NE	0.36	0.37
GBLW4	GREYBULL	WY	0.36E	0.37
GYBW4	GREYBULL, BIGHORN R	WY	0.36E	0.37
LLAS2	LEOLA	SD	0.36E	0.37
LOLS2	LEOLA 1E	SD	0.36E	0.37
LEOS2	LEOLA SDSU	SD	0.36	0.37
LNNI4	LINN GROVE	IA	0.36E	0.37
LBHM8	LITTLE BIG HORN RAWS	MT	0.36E	0.37
MHTK1	MANHATTAN	KS	0.36	0.37
MHKK1	MANHATTAN, KANSAS R	KS	0.36E	0.37
OGAS2	OGLALA 1S	SD	0.36E	0.37
KSJO12	OLATHE 3W	KS	0.36E	0.37
ORCI4	ORANGE CITY	IA	0.36	0.37
OPSK1	OVERLAND PARK	KS	0.36	0.37
PKS	PICKSTOWN	SD	0.36E	0.37
PKSS2	PICKSTOWN	SD	0.36	0.37
SHER003	RUSHVILLE 13S	NE	0.36E	0.37
SHAC2	SHAW 4ENE	CO	0.36	0.37
SLGW4	SHERIDAN, GOOSE CR	WY	0.36E	0.37
WISN8	WISHEK 6W	ND	0.36E	0.37
AXTK1	AXTELL	KS	0.35	0.35
BEAN1	BEATRICE	NE	0.35E	0.35
BRCN1	BEATRICE 1N	NE	0.35	0.35
CAG	CRAIG-MOFFAT AIRPORT	CO	0.35	0.35
CULN1	CULBERTSON	NE	0.35E	0.35
GAGE022	DILLER 3E	NE	0.35E	0.35
EDGK1	EDGERTON 2NE	KS	0.35	0.35
JEFF006	FAIRBURY 8NNW	NE	0.35E	0.35
KCRM7	KANSAS CITY EAST	MO	0.35E	0.35
KGLM7	KINGSVILLE	MO	0.35E	0.35
ZUFK1	LIEBENTHAL	KS	0.35E	0.35
LINK1	LINCOLN, SALINE R	KS	0.35	0.35
MSAM8	MISSOULA 2NE	MT	0.35E	0.35
NZLN1	NENZEL 23SSW	NE	0.35E	0.35
NFCW4	NORTH FRENCH CREEK	WY	0.35E	0.35
ODX	ORD	NE	0.35	0.35

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PBNW4	PINE BLUFFS 10NW	WY	0.35E	0.35
RATM7	RAYTOWN #2	MO	0.35	0.35
BUDS2	ROSEBUD LAKE	SD	0.35E	0.35
RULN1	RULO	NE	0.35E	0.35
RUON1	RULO 2W	NE	0.35	0.35
GURMB	TONGANOXIE 3NE	KS	0.35E	0.35
UVAM7	UNITY VILLAGE 3ESE	MO	0.35	0.35
WAVM7	WAVERLY	MO	0.35	0.35
WVYM7	WAVERLY	MO	0.35E	0.35
WVZM7	WAVERLY GDDS	MO	0.35E	0.35
WSTN1	WESTERN 2W	NE	0.35	0.35
ABR	ABERDEEN AIRPORT	SD	0.34	0.34
GCAW4	ACME, GOOSE CREEK	WY	0.34E	0.34
BARN1	BARNESTON, BIG BLUE	NE	0.34E	0.34
BCRW4	BATES CREEK	WY	0.34E	0.34

BIE	BEATRICE #1	NE	0.34E	0.34
BTXW4	BLACK MOUNTAIN	WY	0.34E	0.34
BDBM8	BRANDENBERG	MT	0.34E	0.34
CLIK1	CLINTON RESERVOIR	KS	0.34	0.34
CBRN1	CULBERTSON	NE	0.34	0.34
DUMK1	DURHAM	KS	0.34E	0.34
FABN1	FAIRBURY 5S	NE	0.34E	0.34
KSJO13	GARDNER 3SE	KS	0.34E	0.34
GLNK1	GLEN ELDER DAM	KS	0.34E	0.34
HRVK1	HARVEYVILLE	KS	0.34E	0.34
HASN1	HAY SPRINGS 12S	NE	0.34E	0.34
HOLK1	HOLTON, SOLDIER CR	KS	0.34E	0.34
LCTK1	LECOMPTON	KS	0.34E	0.34
LCPK1	LECOMPTON, KANSAS R	KS	0.34E	0.34
SHEM001	LITCHFIELD 4N	NE	0.34E	0.34
MNTK1	MANHATTAN 4N	KS	0.34	0.34
PCMW4	MAYOWORTH, POWDER R	WY	0.34	0.34
OPEK1	O P #1300 (CORP WDS)	KS	0.34E	0.34
ONKS2	ONAKA 2N	SD	0.34E	0.34
OPNK1	OVERLAND PARK	KS	0.34E	0.34
WYCR5	ROCK RIVER 10WSW	WY	0.34E	0.34
SENS2	SENECA	SD	0.34E	0.34
TOBN1	TOBIAS	NE	0.34E	0.34
MTTK1	TUTTLE CREEK DAM	KS	0.34E	0.34
WDBK1	WOODBINE, LYONS CR	KS	0.34E	0.34
BRGK1	BURLINGAME, DRAGOON C	KS	0.33E	0.34
CCRM7	CONCORDIA	MO	0.33E	0.34
KCDK1	DESOTO, KILL CR	KS	0.33	0.34
FSTM8	FISHTAIL	MT	0.33E	0.34
BRRN1	HARRISBURG 15SW RAWS	NE	0.33E	0.34
HYSN1	HAY SPRINGS	NE	0.33E	0.34
MSDK1	LOONEY, MIKE	KS	0.33E	0.34
MNHK1	MANHATTAN 6S	KS	0.33E	0.34
PROW4	MCFADDEN 2NNE	WY	0.33E	0.34
MUDS2	MURDO (AMRAD)	SD	0.33E	0.34
OACS2	OACOMA 9SW, WHITE R	SD	0.33	0.34
PALK1	PAOLA 10W	KS	0.33E	0.34
MCCN1	RED WILLOW DAM	NE	0.33E	0.34

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RKVI4	ROCK VALLEY, ROCK R	IA	0.33	0.34
SBTC2	STEAMBOAT SPRINGS	CO	0.33	0.34
BRUM7	BRUNSWICK	MO	0.32E	0.32
BNWM7	BRUNSWICK, MISSOURI R	MO	0.32E	0.32
CLMM7	COLOMA	MO	0.32	0.32
ELMM7	ELM (POWELL GARDENS)	MO	0.32	0.32
EXSM7	EXCELSIOR SPRINGS 4S	MO	0.32	0.32
HAIN1	HAIGLER, ARIKAREE R	NE	0.32E	0.32
HRTK1	HORTON	KS	0.32E	0.32
LARK1	LAWRENCE	KS	0.32	0.32
LDGN1	LODGEPOLE	NE	0.32E	0.32
LNZM7	LONGVIEW DAM	MO	0.32E	0.32
LNGM7	LONGVIEW DAM BELOW	MO	0.32E	0.32

IXD	OLATHE	KS	0.32	0.32
SBTN1	SHUBERT 2SW	NE	0.32E	0.32
SIXI4	SIOUX CENTER 2SE	IA	0.32E	0.32
ORPK1	STANLEY	KS	0.32E	0.32
SONN1	STRATTON	NE	0.32	0.32
0929N8	STREETER 2W	ND	0.32E	0.32
TNGK1	TONGANOXIE 4E	KS	0.32E	0.32
WLSK1	WILSON DAM	KS	0.32E	0.32
WSRK1	WILSON DAM, SALINE R	KS	0.32	0.32
KDNS2	ABERDEEN 6SE	SD	0.31E	0.31
BYNM7	BYNUMVILLE 1E	MO	0.31E	0.31
CHGW4	CHUGWATER	WY	0.31	0.31
DESK1	DE SOTO	KS	0.31E	0.31
EONK1	EASTON	KS	0.31E	0.31
ESTK1	EASTON, STRANGER CR	KS	0.31E	0.31
FPRS2	FORT PIERRE 17WSW	SD	0.31E	0.31
COPH33	HOLYOKE 13SE	CO	0.31E	0.31
KPLK1	KANOPOLIS	KS	0.31E	0.31
SPWW4	KEARNY 12WSW	WY	0.31	0.31
PCMI4	MERRILL 6SW	IA	0.31E	0.31
MURS2	MURDO	SD	0.31E	0.31
NRLN1	NORTH LOUP	NE	0.31E	0.31
OSGK1	OSAGE CITY	KS	0.31	0.31
OVrk1	OVERBROOK 7SE	KS	0.31E	0.31
HOLT009	PAGE	NE	0.31E	0.31
SPKW4	SCHOOLHOUSE PARK	WY	0.31	0.31
TCMN1	TECUMSEH	NE	0.31E	0.31
WETK1	WETMORE	KS	0.31E	0.31
YMAC2	YUMA 10NW	CO	0.31	0.31
SQPM8	ALBERTON	MT	0.30	0.31
BADK1	BARNARD 7W	KS	0.30E	0.31
MFBW4	BARNUM, POWDER R	WY	0.30	0.31
WHEE001	BARTLETT 9NW	NE	0.30E	0.31
BSCM8	BASIN CREEK	MT	0.30	0.31
BLTM8	BEARTOOTH LAKE	MT	0.30	0.31
BKTI4	BROKEN KETTLE RAWS	IA	0.30E	0.31
BKLW4	BROOKLYN LAKE	WY	0.30	0.31
BNGN1	BRUNING	NE	0.30	0.31
BRCM7	BRUNSWICK	MO	0.30	0.31
BRNM7	BRUNSWICK, GRAND R	MO	0.30E	0.31

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FLDW4	BUFFALO 15W	WY	0.30E	0.31
CYS	CHEYENNE AIRPORT	WY	0.30	0.31
CYSW4	CHEYENNE WFO	WY	0.30E	0.31
FEWW4	CHEYENNE WY WY	WY	0.30E	0.31
CPCM8	COPPER CAMP	MT	0.30	0.31
NGPC2	COWDREY 6NW	CO	0.30	0.31
DALM8	DALY CREEK	MT	0.30	0.31
ECHW4	ECHETA 2NW	WY	0.30E	0.31
EFFK1	EFFINGHAM	KS	0.30	0.31
HRBN1	HARBINE 1WSW	NE	0.30E	0.31
JANN1	JANSEN	NE	0.30E	0.31

DMCW4	LARAMIE 8N	WY	0.30E	0.31
LAR	LARAMIE AIRPORT	WY	0.30	0.31
LLRW4	LARAMIE, LARAMIE R	WY	0.30E	0.31
LEXK1	LENEXA	KS	0.30E	0.31
LXAK1	LENEXA	KS	0.30E	0.31
LCKM8	LICK CREEK	MT	0.30	0.31
MDDW4	MIDDLE POWDER	WY	0.30E	0.31
MRNK1	MORAN	KS	0.30E	0.31
NGTC2	NORTHGATE, N PLATTE	CO	0.30E	0.31
OPCK1	O P #1100 (CTY HALL)	KS	0.30E	0.31
MBLW4	SARATOGA 16SE	WY	0.30E	0.31
SNCK1	SENECA, TURKEY CR	KS	0.30	0.31
SKAM8	SKALKAHO SUMMIT	MT	0.30	0.31
SBCW4	SOUTH BRUSH CREEK	WY	0.30	0.31
STAK1	STANLEY 3S DCP	KS	0.30	0.31
TIEW4	TIE CREEK	WY	0.30	0.31
PERK005	VENANGO	NE	0.30E	0.31
WARMB	WARREN, CRAIG	KS	0.30E	0.31
WTLW4	WHEATLAND 10E	WY	0.30E	0.31
WPKW4	WHISKEY PARK	WY	0.30	0.31
WTCK1	WHITE CITY	KS	0.30	0.31
WILW4	WILLOW CREEK	WY	0.30	0.31
YTNS2	YANKTON 2E	SD	0.30	0.31
ABSM8	ABSAROEKEE	MT	0.29E	0.29
ANTN1	ANTIOCH	NE	0.29E	0.29
BDAN1	BARADA 3SW	NE	0.29E	0.29
BSNW4	BASIN	WY	0.29E	0.29
BHBW4	BASIN, BIGHORN R	WY	0.29	0.29
BTHS2	BATH 1NE	SD	0.29E	0.29
4BQ	BROADUS	MT	0.29E	0.29
CLTN1	CARLETON 3SW	NE	0.29E	0.29
COXMB	COX, ROBERT	MO	0.29E	0.29
ELWK1	ELLSWORTH	KS	0.29E	0.29
ESOK1	ELLSWORTH	KS	0.29	0.29
GENK1	GENESE0 2N	KS	0.29E	0.29
HRDM8	HARDIN 3E	MT	0.29E	0.29
IPDM7	INDEPENDENCE #2	MO	0.29	0.29
LEEM7	JAMES A REED WLR	MO	0.29E	0.29
MAZM7	MADISON	MO	0.29E	0.29
MADM7	MADISON	MO	0.29E	0.29
MRTS2	MARTIN	SD	0.29E	0.29
LITS2	MARTIN, LTL WHITE R	SD	0.29	0.29

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KSJ08	OVERLAND PARK 4NNE	KS	0.29E	0.29
RECW4	RECLUSE	WY	0.29E	0.29
SCSK1	SCHOENCHEN 2E	KS	0.29E	0.29
SHKN1	SHICKLEY 4S	NE	0.29E	0.29
SIMK1	SIMPSON, SOLOMON R	KS	0.29	0.29
SOFM7	ST JOE LNDFIL (6)	MO	0.29E	0.29
STTN1	STRATTON, REPUB R	NE	0.29	0.29
SRON1	STRATTON, REPUB R	NE	0.29E	0.29
WYMN1	WYMORE	NE	0.29E	0.29

YANS2	YANKTON, MISSOURI R	SD	0.29E	0.29
BEOM7	BELTON 2W	MO	0.28E	0.28
BNRK1	BONNER SPRINGS	KS	0.28	0.28
ESKK1	ESKRIDGE	KS	0.28	0.28
FRMN1	FAIRMONT	NE	0.28	0.28
FLLN1	FALLS CITY 2NE	NE	0.28E	0.28
GDEK1	GLADE, N FK SOLOMON	KS	0.28	0.28
GRGS2	GREGORY	SD	0.28E	0.28
ABNN1	HARRISBURG 19SW	NE	0.28E	0.28
HBRN1	HEBRON	NE	0.28	0.28
HEBN1	HEBRON #2	NE	0.28E	0.28
HBNN1	HEBRON #2	NE	0.28E	0.28
HOMS2	HOSMER 1E	SD	0.28E	0.28
LXT	LEES SUMMIT AIRPORT	MO	0.28	0.28
LEXM7	LEXINGTON 3E	MO	0.28E	0.28
MOME1	MADISON	MO	0.28E	0.28
NEsk1	NESS CITY	KS	0.28E	0.28
OPAK1	O P #1500 (OLATHE)	KS	0.28E	0.28
MOLF1	ODESSA 6SSE	MO	0.28E	0.28
ONGK1	ONAGA 12 SSW	KS	0.28E	0.28
BSHW4	RYAN PARK, BRUSH CR	WY	0.28E	0.28
SLDW4	SOLDIER PARK SNOTEL	WY	0.28E	0.28
UTYM7	UNITY VILLAGE	MO	0.28E	0.28
ASHN1	ASHTON	NE	0.27E	0.28
WHEE002	BARTLETT 9NE	NE	0.27E	0.28
BIDM8	BIDDLE	MT	0.27E	0.28
CFTN1	CROFTON 8N	NE	0.27E	0.28
DSOK1	DESOTO, KANSAS R	KS	0.27	0.28
ELMW4	ELK MOUNTAIN	WY	0.27E	0.28
EMBW4	EMBLEM	WY	0.27E	0.28
ENPW4	ENCAMPMENT	WY	0.27E	0.28
EWGN1	EWING	NE	0.27E	0.28
GPDN1	GAVINS PT DAM	NE	0.27E	0.28
GNVN1	GENEVA	NE	0.27E	0.28
FORN1	KIMBALL 15NE RAWS	NE	0.27E	0.28
LANK1	LANE	KS	0.27	0.28
LNEK1	LANE, POTTAWATOMIE C	KS	0.27E	0.28
LRMW4	LARAMIE 4SE	WY	0.27E	0.28
LXGM7	LEXINGTON 2SSW	MO	0.27	0.28
LDPN1	LODGEPOLE #2	NE	0.27E	0.28
ZUJK1	MCCRACKEN	KS	0.27E	0.28
SAVM7	SAVANNAH 1S	MO	0.27E	0.28
TONK1	TONGANOXIE SSE	KS	0.27E	0.28
ZEFK1	VICTORIA 7N	KS	0.27E	0.28

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ID	DESCRIPTION	STATE	06/17	SUM
YUMC2	YUMA	CO	0.27E	0.28
BKCI4	AKRON 11E	IA	0.26E	0.26
ALEN8	ALEXANDER 4NNW	ND	0.26E	0.26
BNAM7	BEAN LAKE	MO	0.26E	0.26
BTNW4	BEAR TRAP MEADOW	WY	0.26E	0.26
MNKI4	BRUNSVILLE	IA	0.26	0.26
BURN1	BURCHARD	NE	0.26E	0.26



CMBN1	CAMBRIDGE	NE	0.26	0.26
CAMN1	CAMBRIDGE, REPUB R	NE	0.26E	0.26
CKPI4	CHEROKEE	IA	0.26	0.26
CHKI4	CHEROKEE, LTL SIOUX	IA	0.26E	0.26
CHEW4	CHEYENNE 7W	WY	0.26E	0.26
CINW4	CINNABAR PARK	WY	0.26E	0.26
DRBM8	DARBY	MT	0.26E	0.26
CDOK1	DESOTO, CEDAR CR	KS	0.26	0.26
FNDN1	FRIEND 3E	NE	0.26	0.26
HDNM8	HARDIN	MT	0.26E	0.26
JWLK1	JEWELL	KS	0.26E	0.26
LRCK1	LAWRENCE	KS	0.26E	0.26
LEAK1	LEAWOOD	KS	0.26E	0.26
MASN1	MASON CITY	NE	0.26E	0.26
MEDN8	MEDINA	ND	0.26E	0.26
MWTW4	MIDWEST	WY	0.26	0.26
MCCM8	MILES CITY RAWS	MT	0.26E	0.26
NAPM7	NAPOLION, MISSOURI R	MO	0.26	0.26
OPDK1	O P #1200 (MARTY LN)	KS	0.26	0.26
PRKS2	PARKER, WEST FORK	SD	0.26E	0.26
PCRW4	POKER CREEK RAWS	WY	0.26	0.26
RUSK1	RUSSELL 5N, SALINE R	KS	0.26	0.26
BGCW4	SHERIDAN 6WSW	WY	0.26	0.26
AFOW4	AFTON EXP FARM	WY	0.25E	0.25
AGYM7	AGENCY 4NE, PLATTE R	MO	0.25	0.25
CAWK1	CAWKER CITY	KS	0.25E	0.25
COSM8	COLUMBUS	MT	0.25E	0.25
3DU	DRUMMOND 2SW	MT	0.25E	0.25
EMMK1	EMMETT	KS	0.25E	0.25
ECSN1	ERICSON 8WNW	NE	0.25	0.25
0388N8	GACKLE 11S	ND	0.25E	0.25
GPI	GLACIER PARK AIRPORT	MT	0.25	0.25
LWC	LAWRENCE	KS	0.25	0.25
MCJN1	MCCOOL JUNCTION	NE	0.25E	0.25
MOVI4	MOVILLE	IA	0.25E	0.25
MTVS2	MT VERNON, FIRESTEEL	SD	0.25	0.25
ODSM7	ODESSA 4SE	MO	0.25E	0.25
ORDS2	ORDWAY 1S, ELM R	SD	0.25E	0.25
KSJO15	OVERLAND PARK 4NNW	KS	0.25E	0.25
PHIK1	PHILLIPSBURG #2	KS	0.25E	0.25
PHLK1	PHILLIPSBURG 1SSE	KS	0.25E	0.25
PROS2	PRESHO 7NW	SD	0.25E	0.25
WICC2	RAND 7SW RAWS	CO	0.25	0.25
SHR	SHERIDAN AIRPORT	WY	0.25	0.25
WGSW4	SHERIDAN SCHOOL	WY	0.25E	0.25
0392N8	STREETER 5S	ND	0.25E	0.25

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VERC2	VERNON 4SW	CO	0.25E	0.25
WRRM7	WARRENSBURG 4NW	MO	0.25	0.25
WITS2	WHITE LAKE	SD	0.25	0.25
WTES2	WHITE LAKE (SDSU)	SD	0.25E	0.25
BGDW4	BIG GOOSE CREEK ABV	WY	0.24E	0.24

CRLK1	CIRCLEVILLE 7SW	KS	0.24E	0.24
CLKC2	CLARK	CO	0.24E	0.24
WBRM8	CORVALLIS 2NE	MT	0.24E	0.24
YEN	ESTEVA	SK	0.24	0.24
FNB	FALLS CITY 2NE	NE	0.24	0.24
SMTW4	FILMORE, LTL LARAMIE	WY	0.24	0.24
GLDK1	GLEN ELDER 2SE	KS	0.24E	0.24
GOEN1	GOEHNER	NE	0.24E	0.24
GROS2	GROTON	SD	0.24E	0.24
HERK1	HERINGTON	KS	0.24E	0.24
HOLC2	HOLYOKE 3SSW	CO	0.24	0.24
KCPM7	KANSAS CITY 1SE	MO	0.24E	0.24
LSWM7	LEES SUMMIT 2WSW	MO	0.24	0.24
LGVS2	LONGVALLEY	SD	0.24E	0.24
LURK1	LURAY	KS	0.24E	0.24
MMLN1	MILLER	NE	0.24E	0.24
CBAS2	MUD LAKE OUTLET	SD	0.24E	0.24
OSKK1	OSKALOOSA 4NE	KS	0.24E	0.24
SAWW4	SAWMILL PARK RAWS	WY	0.24	0.24
SXRI4	SIOUX RAPIDS 4E	IA	0.24E	0.24
WRYC2	WRAY	CO	0.24E	0.24
APLMB	APLEY, TED	MO	0.23E	0.23
APCM7	APPLETON CITY	MO	0.23	0.23
AHRW4	ARCHER	WY	0.23E	0.23
FRON005	BARTLEY 9NNW	NE	0.23E	0.23
BTLS2	BATESLAND	SD	0.23E	0.23
MORR003	BAYARD 14NNE	NE	0.23E	0.23
BOWS2	BOWDLE	SD	0.23E	0.23
BWDS2	BOWDLE	SD	0.23E	0.23
CARK1	CARBONDALE	KS	0.23E	0.23
CENW4	CENTENNIAL 1NE	WY	0.23E	0.23
CABN1	HARRY STRUNK RES	NE	0.23E	0.23
HLTM7	HOLT 3E	MO	0.23E	0.23
HOUS2	HOUGHTON 4SE	SD	0.23E	0.23
KWPM7	KC WARD PARKWAY	MO	0.23	0.23
KIRC2	KIRK AMRAD	CO	0.23E	0.23
LEBI4	LEBANON 4SE	IA	0.23E	0.23
LSSM7	LEES SUMMIT 2SE	MO	0.23	0.23
LSTW4	LOST CREEK	WY	0.23E	0.23
MDCK1	MOUND CITY	KS	0.23E	0.23
MSCK1	MUSCOTAH, DELAWARE R	KS	0.23	0.23
RANK1	RANSOM 2NE	KS	0.23E	0.23
SHWK1	SHAWNEE 2S	KS	0.23E	0.23
STON1	STANTON 7NE	NE	0.23	0.23
UTCN1	UTICA	NE	0.23	0.23
BHMM8	WYOLA 25WSW	MT	0.23	0.23
BRDN1	BRADSHAW	NE	0.22	0.22
BRIM8	BRIDGER 5SE	MT	0.22E	0.22

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STATION	DESCRIPTION	STATE	06/17	PERIOD SUM
SBFM8	BRIDGER 9SE	MT	0.22	0.22
BROK1	BURR OAK 1N	KS	0.22	0.22
CMRW4	CASPER MOUNTAIN	WY	0.22E	0.22

CRFN1	CROFTON	NE	0.22E	0.22
DRGN1	DORCHESTER, BIG BLUE	NE	0.22E	0.22
DGW	DOUGLAS	WY	0.22	0.22
BEVW4	ENCAMPMENT, BEAVER C	WY	0.22E	0.22
FAIMB	FAIMON, ADRIAN	MO	0.22E	0.22
FRON1	FORT ROBINSON	NE	0.22E	0.22
NEMA009	JOHNSON 2E	NE	0.22E	0.22
KCEW4	KAYCEE	WY	0.22	0.22
LKJM7	LAKE JACOMO	MO	0.22E	0.22
GARD009	LEWELLEN 2E	NE	0.22E	0.22
LUSN1	LINCOLN 3S, SALT C	NE	0.22	0.22
NWPN1	NEWPORT	NE	0.22E	0.22
BRRK1	OVERLAND PARK, BLUE R	KS	0.22	0.22
RELS2	RELIANCE 4NE	SD	0.22E	0.22
SCNK1	SCHOENCHEN 1W	KS	0.22E	0.22
VALM7	VALLEY CITY	MO	0.22E	0.22
VLYM7	VALLEY CITY 1NW	MO	0.22E	0.22
WLBN1	WILBER, TURKEY CR	NE	0.22	0.22
BYDW4	BOYD RIDGE RAWS	WY	0.21E	0.21
BDGM8	BRIDGER 2N	MT	0.21E	0.21
WYNT3	CASPER 4WSW	WY	0.21E	0.21
WYLM22	CHEYENNE 5NE	WY	0.21	0.21
GRAW4	CHEYENNE 7NE	WY	0.21E	0.21
CLYN1	CLAY CENTER 6ESE	NE	0.21	0.21
CORM7	CORNING	MO	0.21E	0.21
CSBM7	COSBY 2W	MO	0.21	0.21
COZN1	COZAD 2S, PLATTE R	NE	0.21	0.21
CRBN1	CRAB ORCHARD	NE	0.21E	0.21
RED_013	DANBURY 1W	NE	0.21E	0.21
DWEN1	DEWEESE, LTL BLUE R	NE	0.21E	0.21
DGSW4	DOUGLAS	WY	0.21E	0.21
DPWW4	DOUGLAS 1SSW	WY	0.21E	0.21
BAGM8	DUPUYER 22SW	MT	0.21E	0.21
FRI	FT RILEY	KS	0.21E	0.21
GOFK1	GOFF 3WSW	KS	0.21E	0.21
GLDC2	GOLDEN	CO	0.21E	0.21
GUIN1	GUIDE ROCK, REPUB R	NE	0.21E	0.21
HRTN1	HARTINGTON	NE	0.21	0.21
GLUN8	HEART BUTTE DAM	ND	0.21	0.21
HOSI4	HOSPERS	IA	0.21E	0.21
HUT	HUTCHISON AIRPORT	KS	0.21	0.21
IONS2	IONA 2NE	SD	0.21E	0.21
LEWN1	LEWELLEN, NO PLATTE	NE	0.21E	0.21
MCDK1	MCDONALD	KS	0.21E	0.21
NELN1	NELSON	NE	0.21E	0.21
ORLS2	ORAL	SD	0.21	0.21
PLKS2	PLANKINTON	SD	0.21E	0.21
PCPS2	PLATTE 8SW, PLATTE C	SD	0.21E	0.21
PGHI4	PRIMGHAR	IA	0.21E	0.21
WNSI4	RIVERTON, WEST NISH	IA	0.21	0.21

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SDGC2	SEDGWICK 5S	CO	0.21E 0.21

ZOMK1	SHIELDS 1NE	KS	0.21E	0.21
STBM8	STEAMBOAT RAWS	MT	0.21	0.21
TILN1	TILDEN	NE	0.21E	0.21
VTLS2	VETAL, LTL WHITE R	SD	0.21E	0.21
ATSK1	ATCHISON 1S	KS	0.20	0.20
ATCK1	ATCHISON, MISSOURI R	KS	0.20E	0.20
BADM8	BADGER PASS	MT	0.20	0.20
BDDN1	BARTLEY 4SSW	NE	0.20E	0.20
BEVM8	BEAVER CREEK	MT	0.20	0.20
BVRN1	BEAVER CROSSING	NE	0.20E	0.20
BYDM8	BOYD, RED LODGE CR	MT	0.20E	0.20
BUCM7	BUCKNER	MO	0.20E	0.20
BFFW4	BUFFALO 5WSW	WY	0.20E	0.20
BRJW4	BURGESS JUNCTION	WY	0.20	0.20
BURK1	BURR OAK, WHITE ROCK	KS	0.20E	0.20
CTAM7	CENTRALIA	MO	0.20E	0.20
CPKW4	CLOUD PEAK RESERVOIR	WY	0.20	0.20
CROC2	CROOK 7NNE	CO	0.20E	0.20
DHLM8	DARKHORSE LAKE	MT	0.20	0.20
DVDW4	DIVIDE PEAK	WY	0.20	0.20
4DG	DOUGLAS	WY	0.20E	0.20
DRLC2	DRY LAKE	CO	0.20	0.20
ELKC2	ELK RIVER	CO	0.20	0.20
EMCM8	EMERY CR SNT	MT	0.20E	0.20
ESTW4	ESTERBROOK RAWS	WY	0.20E	0.20
EWIN1	EWING 1N, ELKHORN R	NE	0.20E	0.20
GAVS2	GANN VALLEY 9NW	SD	0.20	0.20
COJF40	GOLDEN 1NW	CO	0.20E	0.20
GLNC2	GOLDEN GDDS	CO	0.20	0.20
GRVW4	GROS VENTRE SUMMIT	WY	0.20	0.20
HNSW4	HANSEN SAWMILL	WY	0.20	0.20
JPSN1	HARRISON 4NW	NE	0.20E	0.20
HIGM7	HIGGINSVILLE	MO	0.20	0.20
HOOM8	HOODOO BASIN	MT	0.20	0.20
JWRC2	JOE WRIGHT	CO	0.20	0.20
JOEC2	JOES	CO	0.20	0.20
JOLM8	JOLIET	MT	0.20E	0.20
PKRW4	KAYCEE 20W	WY	0.20E	0.20
KNDW4	KENDALL	WY	0.20	0.20
NFEM8	NORTH FORK ELK CREEK	MT	0.20	0.20
OAKN8	OAKES	ND	0.20	0.20
KSJO14	OLATHE 3ENE	KS	0.20E	0.20
OSAK1	OSAWATOMIE	KS	0.20	0.20
OSMK1	OSAWATOMIE 1NW	KS	0.20E	0.20
OWLW4	OWL CREEK	WY	0.20E	0.20
PICM8	PIKE CR SNT	MT	0.20	0.20
PMPM8	POMPEYS PILLAR 18N	MT	0.20E	0.20
RNHW4	RENO HILL	WY	0.20	0.20
RHKW4	ROCHELLE HILLS RAWS	WY	0.20	0.20
SGBW4	SAGE CREEK BASIN	WY	0.20	0.20
SMNM7	SUMNER 3SW	MO	0.20E	0.20
TEPM8	TEPEE POINT RAWS	MT	0.20E	0.20

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OCKW4	THERMOPOLIS, OWL CR	WY	0.20	0.20
TOPW4	TWO OCEAN PLATEAU	WY	0.20	0.20
UTIS2	UTICA	SD	0.20E	0.20
VDAC2	VIRGINIA DALE 7ENE	CO	0.20	0.20
ALNN1	ALLEN	NE	0.19E	0.19
AMTM7	AMITY 4NE	MO	0.19	0.19
BEVM7	AVA 1S RAW	MO	0.19	0.19
ZRNK1	BEELER	KS	0.19	0.19
BXCW4	BOXELDER, BOXELDER C	WY	0.19E	0.19
CMRN1	CAMERON 20NE	NE	0.19	0.19
CSWW4	CASPER 1SW	WY	0.19E	0.19
CKVC2	CLARKVILLE 1N	CO	0.19E	0.19
SFAK1	CO-KS STATE LINE	KS	0.19E	0.19
CRWN1	CRAWFORD	NE	0.19E	0.19
ELON1	ELLSWORTH	NE	0.19E	0.19
FAUS2	FAULKTON 1NW	SD	0.19E	0.19
FMMC2	FLEMING 3SW	CO	0.19E	0.19
FLEC2	FLEMING AMRAD	CO	0.19E	0.19
FORN8	FORBES 10NW	ND	0.19E	0.19
FRYK1	FT RILEY	KS	0.19E	0.19
HRTW4	HARTVILLE 7NNE	WY	0.19E	0.19
LEFW4	LARAMIE 2WSW	WY	0.19E	0.19
LEMI4	LE MARS	IA	0.19E	0.19
LNK	LINCOLN	NE	0.19	0.19
EEO	MEEKER AIRPORT	CO	0.19	0.19
OPBK1	O P #1700 (JCCC)	KS	0.19E	0.19
OSBK1	OSBORNE, SOLOMON R	KS	0.19	0.19
PLGN1	PILGER, ELKHORN R	NE	0.19E	0.19
PLDN1	PLEASANTDALE 2NW	NE	0.19	0.19
RONW4	RAIRDEN 2WSW	WY	0.19E	0.19
ROBS2	ROUBAIX, ELK CREEK	SD	0.19	0.19
SNZM7	SUMNER 2SW, GRAND R	MO	0.19E	0.19
TFRW4	TEN SLEEP 4NE	WY	0.19E	0.19
TOLS2	TOLSTOY 6N	SD	0.19E	0.19
WMLK1	WESTMORELAND	KS	0.19E	0.19
YKN	YANKTON	SD	0.19	0.19
YORN1	YORK 3N	NE	0.19	0.19
ARNK1	ARNOLD, SMOKY HILL R	KS	0.18E	0.19
ATHK1	ATCHISON	KS	0.18	0.19
BSTN1	BASSETT	NE	0.18E	0.19
ZROK1	BEELER	KS	0.18E	0.19
BACM7	BLACKWATER (DNR)	MO	0.18E	0.19
BEGM7	BLUE SPRINGS	MO	0.18E	0.19
BRPN1	BRIDGEPORT	NE	0.18E	0.19
CWWW4	CASPER WATER PLANT	WY	0.18E	0.19
CPRW4	CASPER, NO PLATTE R	WY	0.18	0.19
CCRN1	CLAY CENTER	NE	0.18	0.19
EKYC2	ECKLEY 14N	CO	0.18E	0.19
FALS2	FAULKTON	SD	0.18E	0.19
FAAS2	FAULKTON 6ESE	SD	0.18E	0.19
FSLM8	FISHTAIL 7W RAW	MT	0.18E	0.19
0391N8	FREDONIA 1E	ND	0.18E	0.19
GARN1	GARLAND	NE	0.18E	0.19

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GLNW4	GLENROCK, N PLATTE R	WY	0.18E	0.19
0063N8	GRASSY BUTTE 9SE	ND	0.18E	0.19
WEBS011	GUIDE ROCK 9N	NE	0.18E	0.19
HVNS2	HOVEN	SD	0.18E	0.19
IONK1	IONIA	KS	0.18E	0.19
WATM7	KC WATTS MILLS	MO	0.18E	0.19
KENS2	KENNEBEC	SD	0.18E	0.19
LWRW4	LARAMIE 2NW	WY	0.18E	0.19
NUCK004	LAWRENCE	NE	0.18E	0.19
NUCK001	LAWRENCE	NE	0.18E	0.19
MODK1	MOUND CITY 1SSW	KS	0.18E	0.19
NFLW4	NEW FORK LAKE	WY	0.18E	0.19
NTWN8	NEW TOWN 4W	ND	0.18E	0.19
NPCN1	NORTHPORT CANAL	NE	0.18E	0.19
OLAK1	OLATHE 3E	KS	0.18E	0.19
ONAK1	ONAGA	KS	0.18E	0.19
ZRGK1	RANSOM	KS	0.18E	0.19
RAVN1	RAVENNA	NE	0.18E	0.19
RVNN1	RAVENNA, SO LOUP R	NE	0.18E	0.19
RLIS2	RELIANCE (AMRAD)	SD	0.18E	0.19
REMI4	REMSSEN	IA	0.18E	0.19
RMSI4	REMSSEN #2	IA	0.18	0.19
TCPW4	THERMOPOLIS 25WNW	WY	0.18E	0.19
WETS2	WETONKA 7S	SD	0.18E	0.19
WLD	WINFIELD AIRPORT	KS	0.18	0.19
ADAN1	ADAMS	NE	0.17	0.17
ASWN1	AINSWORTH	NE	0.17E	0.17
ABRN1	AUBURN, LTL NEMAHA R	NE	0.17E	0.17
BEAS2	BUFFALO GAP 2S	SD	0.17E	0.17
BURW4	BURGESS JUNCTION	WY	0.17E	0.17
DUGW4	DOUGLAS 17NE	WY	0.17E	0.17
ELRN1	ELLSWORTH 24NNE	NE	0.17E	0.17
GREK1	GREAT BEND 2N	KS	0.17E	0.17
GTNS2	GROTON	SD	0.17E	0.17
HBGN1	HARRISBURG 4SSW	NE	0.17	0.17
HRRN1	HARRISON 9W	NE	0.17E	0.17
JUDS2	KEYSTONE, BATTLE CR	SD	0.17	0.17
LCKW4	LANCE CREEK 1W	WY	0.17E	0.17
LEXN1	LEXINGTON	NE	0.17	0.17
LNFN1	LINCOLN FIRE STA 8	NE	0.17E	0.17
LINM7	LINNEUS	MO	0.17E	0.17
LNNM7	LINNEUS 3SE	MO	0.17	0.17
LSKW4	LUSK 2SW	WY	0.17E	0.17
MALN1	MALCOLM	NE	0.17	0.17
MARN1	MARTINSBURG	NE	0.17E	0.17
MINS2	MINA (MINA LAKE)	SD	0.17E	0.17
OKAS2	OKATON	SD	0.17E	0.17
KSJ011	OLATHE 4SE	KS	0.17E	0.17
PBTW4	PINE BLUFFS #2	WY	0.17E	0.17
PTRK1	POTTER, STRANGER CR	KS	0.17	0.17
RCHK1	RICHLAND, WAKARUSA R	KS	0.17E	0.17
RSSK1	ROSSVILLE, CROSS CR	KS	0.17E	0.17
LVSS2	SALEM 5NE	SD	0.17	0.17

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ZECK1	SCHOENCHEN 6WNW	KS	0.17E	0.17
SDY	SIDNEY-RICHLAND AP	MT	0.17E	0.17
JOHN005	STERLING 3ESE	NE	0.17E	0.17
STKS2	STICKNEY	SD	0.17E	0.17
TRON8	TROTTERS 3SSE	ND	0.17E	0.17
WAGS2	WAGNER	SD	0.17E	0.17
PRMM8	WILD HORSE RAWS	MT	0.17E	0.17
AFCS2	ABERDEEN, FOOT CR	SD	0.16	0.16
ARZM7	ARCHIE GDDS	MO	0.16E	0.16
ARHM7	ARCHIE, SO GRAND R	MO	0.16E	0.16
AUBN1	AUBURN 5ESE	NE	0.16	0.16
BTLN1	BARTLETT 1S	NE	0.16E	0.16
BRGS2	BRIDGEWATER	SD	0.16E	0.16
BGPS2	BUFFALO GAP	SD	0.16E	0.16
BUWW4	BUFORD 6W	WY	0.16E	0.16
CPR	CASPER INTL AIRPORT	WY	0.16	0.16
CLEN1	COLERIDGE	NE	0.16E	0.16
DTNN1	DALTON	NE	0.16E	0.16
DOOI4	DOON 4ENE	IA	0.16E	0.16
TOFW4	DUBOIS 41NNW	WY	0.16E	0.16
HATS2	EDGEMONT, HAT CR	SD	0.16	0.16
EMRN1	EMERSON	NE	0.16E	0.16
FFXM7	FAIRFAX 1W, TARKIO R	MO	0.16E	0.16
FAIN8	FAIRFIELD	ND	0.16E	0.16
GDYC2	GLENDEVEY	CO	0.16E	0.16
GDRN1	GUIDE ROCK	NE	0.16E	0.16
HSNS2	HARRISON 4W	SD	0.16E	0.16
HBDM8	HEBGEN DAM	MT	0.16E	0.16
HYAN1	HYANNIS	NE	0.16E	0.16
COBO99	HYGIENE 1N	CO	0.16	0.16
HGIC2	HYGIENE 1N	CO	0.16E	0.16
KCSM7	KANSAS CITY SOUTH	MO	0.16E	0.16
KBLS2	KIMBALL	SD	0.16E	0.16
KIMS2	KIMBALL (AMRAD)	SD	0.16E	0.16
NWDW4	LOST CABIN 19NE	WY	0.16E	0.16
MRLI4	MERRILL, FLOYD R	IA	0.16E	0.16
BCKN8	OAKES 6NNE, BEAR CR	ND	0.16E	0.16
ODLN1	ODELL	NE	0.16E	0.16
OGLN1	OGALLALA	NE	0.16E	0.16
PULI4	PAULLINA	IA	0.16E	0.16
PRGS2	PINE RIDGE RAWS	SD	0.16E	0.16
RAYN1	RAYMOND 4W	NE	0.16E	0.16
ROBM8	ROBERTS 1N	MT	0.16E	0.16
RSDM7	ROSENDALE, 102 RIVER	MO	0.16	0.16
RVEK1	ROSSVILLE	KS	0.16E	0.16
SNBI4	SANBORN	IA	0.16E	0.16
SHLI4	SHELDON 1N, FLOYD R	IA	0.16E	0.16
SDYM8	SIDNEY 1NE	MT	0.16E	0.16
TAPN8	TAPPEN 3NW	ND	0.16E	0.16
TAKM7	TARKIO #2	MO	0.16	0.16
TARM7	TARKIO 1SW	MO	0.16E	0.16

VDLN1 VERDEL 6SSE NE 0.16E 0.16  
 RICS2 ABERDEEN 9NW SD 0.15E 0.16

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AKRC2	AKRON 4E	CO	0.15E	0.16
ANGS2	ANGOSTURA DAM BELOW	SD	0.15	0.16
ARTS2	ARTAS	SD	0.15E	0.16
BETS2	BETHLEHEM CAVE	SD	0.15E	0.16
BDDM8	BIDDLE 8SW	MT	0.15E	0.16
SYBW4	BOSLER 21NE	WY	0.15E	0.16
BOSW4	BOSLER 2S, LARAMIE R	WY	0.15E	0.16
BGPN1	BRIDGEPORT, N PLATTE	NE	0.15E	0.16
9V9	CHAMBERLAIN	SD	0.15	0.16
CBRS2	CHAMBERLAIN 5S	SD	0.15E	0.16
COLN8	COLUMBUS	ND	0.15E	0.16
OSKN1	CRESCENT LAKE REFUGE	NE	0.15E	0.16
DWNK1	DOWNS	KS	0.15E	0.16
FLGC2	FLAGLER 1S	CO	0.15E	0.16
ELLS2	FREDERICK 4SW	SD	0.15E	0.16
FRES2	FREEMAN	SD	0.15E	0.16
HILS2	HILL CITY 5S AMRAD	SD	0.15E	0.16
TDFS2	HILL CITY, SPRING CR	SD	0.15	0.16
LCGK1	LA CYGNE 1W	KS	0.15E	0.16
LDOM7	LAREDO, MEDICINE CR	MO	0.15	0.16
LENI4	LEON 6ESE	IA	0.15	0.16
MBG	MOBRIDGE	SD	0.15	0.16
OJC	OLATHE	KS	0.15	0.16
OKSN1	OSHKOSH 10NE	NE	0.15E	0.16
OVTN1	OVERTON 3W, PLATTE R	NE	0.15E	0.16
OLWW4	OWL CREEK	WY	0.15E	0.16
VRPS2	PARKER, EAST FORK	SD	0.15	0.16
PLSK1	PLEASANTON	KS	0.15E	0.16
PRSW4	POWDER RIVER SCHOOL	WY	0.15E	0.16
RGUS2	RENO GULCH	SD	0.15E	0.16
SEBC2	SEIBERT	CO	0.15E	0.16
SEWN1	SEWARD	NE	0.15E	0.16
STJN1	ST JAMES	NE	0.15E	0.16
JOHN009	STERLING 3WSW	NE	0.15E	0.16
SULM8	SULA 3ENE	MT	0.15E	0.16
SUNS2	SUNDAY GULCH	SD	0.15	0.16
ZEEK1	VICTORIA 5ENE	KS	0.15E	0.16
WRNS2	WARNER	SD	0.15E	0.16
ALAM7	ALBANY	MO	0.14	0.14
ALBM7	ALBANY	MO	0.14E	0.14
ABAM7	ALBANY, E FK GRAND R	MO	0.14E	0.14
ARDS2	ARDMORE 2N	SD	0.14E	0.14
BABM8	BABB 4SW	MT	0.14E	0.14
BLUN1	BLUE HILL 4SW	NE	0.14	0.14
BRON1	BROWNVILLE	NE	0.14E	0.14
BGFS2	BUFFALO GAP,CHEYENNE	SD	0.14E	0.14
BFGS2	BUFFALO GAP,CHEYENNE	SD	0.14E	0.14
CBCN1	CENTER, BAZILE CR	NE	0.14E	0.14
CHLM7	CHILLICOTHE	MO	0.14	0.14



CHLI4	CLIMBING HILL	IA	0.14E	0.14
COKN1	COOK	NE	0.14E	0.14
CRAS2	CUSTER 4N	SD	0.14E	0.14
DRXM7	DREXEL	MO	0.14E	0.14

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EKLC2	ECKLEY	CO	0.14E	0.14
EMLS2	ELM LAKE 4NW	SD	0.14E	0.14
ENCW4	ENCAMPMENT 10ESE	WY	0.14E	0.14
BHCM7	EXCELLO 3WSW	MO	0.14E	0.14
CCKS2	FORT THOMPSON 3E	SD	0.14E	0.14
GVYS2	GANN VALLEY 8SW	SD	0.14E	0.14
GAKN8	GARRISON ABV SKUNK	ND	0.14E	0.14
GILI4	GILLETTE GROVE	IA	0.14E	0.14
GRSN1	GRESHAM 3W	NE	0.14E	0.14
HRNN1	HARRISON	NE	0.14E	0.14
HBGM8	HEBGEN DAM	MT	0.14E	0.14
HCLW4	HECLA 1E	WY	0.14E	0.14
SPLS2	HIGHMORE 18N	SD	0.14E	0.14
HHRW4	HYATTVILLE 6NE	WY	0.14E	0.14
KDAS2	KADOKA	SD	0.14E	0.14
KMBS2	KIMBALL 11SSE	SD	0.14E	0.14
KGCM7	KING CITY	MO	0.14E	0.14
ICLK1	LEAWOOD, INDIAN CR	KS	0.14E	0.14
LRLM7	LEES SUMMIT ROAD	MO	0.14	0.14
SODK1	LENEXA #2	KS	0.14E	0.14
LOKN1	LINCOLN 5NW, OAK CR	NE	0.14	0.14
LVNN1	LINCOLN, STEVENS CR	NE	0.14	0.14
MDAN1	MINATARE DAM	NE	0.14	0.14
Y26	MOBRIDGE 2NNW	SD	0.14E	0.14
SQUM7	MOUND CITY, SQUAW CR	MO	0.14E	0.14
MLSN1	MULLEN 15S	NE	0.14E	0.14
NFLN1	NORFOLK 4W	NE	0.14	0.14
OSEI4	OSCEOLA	IA	0.14	0.14
OHKN1	OSHKOSH 8SW	NE	0.14E	0.14
PRVW4	POWDER RIVER #2	WY	0.14E	0.14
RPJM8	RAPELJE 4S	MT	0.14E	0.14
RPTM8	REEDPOINT	MT	0.14E	0.14
SCZM7	SHELL CITY, OSAGE R	MO	0.14E	0.14
SWRN1	SEWARD #2	NE	0.14E	0.14
SHDI4	SHELDON	IA	0.14E	0.14
SPHN1	STAPLEHURST 3WNW	NE	0.14E	0.14
TRDK1	STATELINE RAWS	KS	0.14	0.14
SKTK1	STOCKTON 9N, BOW CR	KS	0.14E	0.14
THRW4	THOROFARE	WY	0.14E	0.14
FOE	TOPEKA FORBES FIELD	KS	0.14E	0.14
TPOK1	TRADING POST 2SSE	KS	0.14E	0.14
UNTK1	UNIONTOWN	KS	0.14E	0.14
VPRN1	VALPARAISO	NE	0.14E	0.14
VRDN1	VERDEL, NIOBRARA R	NE	0.14E	0.14
VOLM8	VOLBORG	MT	0.14E	0.14
WSTS2	WESTPORT 3SE	SD	0.14E	0.14
SMCW4	WHEATLAND 20SW	WY	0.14E	0.14

WILS2	WILSON CREEK CAMP	SD	0.14	0.14
WNSN1	WINSIDE	NE	0.14E	0.14
YNN52	YANKTON, JAMES R	SD	0.14E	0.14
ARAS2	ARTAS 1S	SD	0.13E	0.13
AVVM7	AVA 6W	MO	0.13E	0.13
MORR013	BAYARD 6SE	NE	0.13E	0.13

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BGWN1	BRIDGEPORT 18WSW	NE	0.13E	0.13
BRTM8	BRITTON SPRINGS	MT	0.13E	0.13
CRSN8	CARSON, ANTELOPE CR	ND	0.13E	0.13
CDJ	CHILLICOTHE	MO	0.13	0.13
CLYK1	COLLYER 10S	KS	0.13E	0.13
CREN1	CREIGHTON	NE	0.13E	0.13
CTEN1	CRETE	NE	0.13E	0.13
CRTN1	CRETE 1W, BIG BLUE R	NE	0.13E	0.13
DAWN8	DAWSON	ND	0.13E	0.13
RASW4	DUBOIS 22SW	WY	0.13E	0.13
ELMN1	ELM CREEK 1SSW	NE	0.13E	0.13
EPPN8	EPPING	ND	0.13E	0.13
FRXM7	FAIRFAX	MO	0.13E	0.13
GIBM8	GIBBONS PASS	MT	0.13E	0.13
GILW4	GILLETTE 4SE	WY	0.13E	0.13
GREN1	GREELEY	NE	0.13E	0.13
NUCK014	GUIDE ROCK 8ESE	NE	0.13E	0.13
HMKW4	HAMS FORK	WY	0.13E	0.13
ZIMN1	HARRISON 9NE	NE	0.13E	0.13
MIMN1	HARRISON 9NE	NE	0.13E	0.13
HGBM7	HIGBEE 4S	MO	0.13E	0.13
RTLS2	HIGHMORE 22N	SD	0.13E	0.13
HICS2	HILL CITY	SD	0.13E	0.13
HWRS2	HOWARD 8SE	SD	0.13E	0.13
JELW4	JELM 2S	WY	0.13E	0.13
KAYW4	KAYCEE, MID POWDER R	WY	0.13	0.13
LAYK1	LA CYGNE 4ESE	KS	0.13	0.13
LNIN1	LINCOLN FIRE STA 11	NE	0.13E	0.13
MRDS2	MISSION RIDGE 5NW	SD	0.13E	0.13
ORCN1	ORCHARD 1NW	NE	0.13E	0.13
OSHN1	OSHKOSH	NE	0.13E	0.13
RNDC2	RAND	CO	0.13E	0.13
RNDN1	RANDOLPH 6S	NE	0.13E	0.13
SLMS2	SALEM 5NE	SD	0.13E	0.13
SHLM7	SHELL CITY	MO	0.13E	0.13
SHRW4	SHIRLEY BASIN	WY	0.13E	0.13
STTC2	STRATTON	CO	0.13E	0.13
SOHC2	STRATTON	CO	0.13E	0.13
VERN1	VERDEL, PONCA CR	NE	0.13E	0.13
VNAC2	VONA	CO	0.13E	0.13
BEKS2	WINFRED 2S	SD	0.13	0.13
WRSM8	WISE RIVER RAWS	MT	0.13E	0.13
BHRM8	YELLOWTAIL DAM	MT	0.13E	0.13
ARMS2	ARMOUR	SD	0.12E	0.13
CCAS2	AVON 6SW	SD	0.12E	0.13

BBDS2	BIG BEND DAM	SD	0.12E	0.13
BSNK1	BISON	KS	0.12	0.13
CLFK1	CLAFLIN	KS	0.12	0.13
DENN1	DENTON 4E	NE	0.12E	0.13
DVDM8	DIVIDE, BIG HOLE R	MT	0.12E	0.13
EGYN8	EDGELEY 3WNW	ND	0.12E	0.13
EGNN8	ELGIN	ND	0.12E	0.13
ELSN1	ELLSWORTH 15NNE	NE	0.12E	0.13

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ELWN1	ELWOOD 8S	NE	0.12	0.13
ESBK1	ESBON 7N	KS	0.12E	0.13
FTMS2	FORT MEADE	SD	0.12E	0.13
ERFS2	FREDERICK 9W, ELM R	SD	0.12	0.13
GETW4	GILLETTE 10N	WY	0.12E	0.13
HSKN1	HOSKINS	NE	0.12E	0.13
HOYK1	HOYT	KS	0.12E	0.13
HON	HURON	SD	0.12	0.13
INMK1	INMAN	KS	0.12E	0.13
IRES2	IRENE	SD	0.12E	0.13
JRMK1	JEROME 1S	KS	0.12E	0.13
KEYS2	KEYSTONE	SD	0.12E	0.13
KBLN1	KIMBALL 14SSW	NE	0.12E	0.13
LPRW4	LAPRELE CREEK	WY	0.12E	0.13
LSCN1	LINCOLN 7NW, SALT CR	NE	0.12	0.13
LGSW4	LITTLE GOOSE SNOTEL	WY	0.12E	0.13
MANK1	MANKATO	KS	0.12	0.13
MLLN1	MILLER	NE	0.12E	0.13
ONTS2	ORIENT	SD	0.12E	0.13
OZMN1	OSMOND	NE	0.12E	0.13
PLVN1	PLAINVIEW	NE	0.12E	0.13
POWW4	POWELL RADIO	WY	0.12E	0.13
PRTM7	PRINCETON	MO	0.12	0.13
PRYM8	PRYOR	MT	0.12E	0.13
RANC2	RAND AMRAD	CO	0.12E	0.13
RYMN1	RAYMOND 2NE	NE	0.12E	0.13
RWYM7	RIDGEWAY	MO	0.12	0.13
SIDI4	SIDNEY	IA	0.12	0.13
SFDS2	STRATFORD, JAMES R	SD	0.12E	0.13
ULYN1	ULYSSES	NE	0.12E	0.13
WYNN1	WAYNE	NE	0.12	0.13
WAYN1	WAYNE 4NW	NE	0.12E	0.13
DODW4	WHEATLAND 28WSW	WY	0.12E	0.13
WNDK1	WINDOM 1SE	KS	0.12	0.13
WGHW4	WRIGHT 12E	WY	0.12E	0.13
AKO	AKRON 1N	CO	0.11E	0.12
AKNC2	AKRON 1SE	CO	0.11E	0.12
AURN1	AURORA	NE	0.11E	0.12
BCKN1	BATTLE CREEK	NE	0.11E	0.12
BERK1	BERRYTON	KS	0.11E	0.12
BEYM7	BETHANY, E FK BIG CR	MO	0.11	0.12
BGHM8	BIG HORN 4SW GDDS	MT	0.11E	0.12
BGSM8	BIG SKY 2WNW	MT	0.11E	0.12

BRKM7	BROOKFIELD	MO	0.11	0.12
BEKM7	BROOKFIELD	MO	0.11E	0.12
BRWM7	BROWNING, LOCUST CR	MO	0.11E	0.12
CNSM7	CAINSVILLE	MO	0.11	0.12
CHUM7	CHULA, MUDDY CR	MO	0.11E	0.12
CFHM7	CLIFTON HILL	MO	0.11E	0.12
COSS2	CORSON, SPLIT ROCK C	SD	0.11	0.12
CDHS2	COTTONWOOD DAM	SD	0.11E	0.12
COVK1	COVERT	KS	0.11E	0.12
CKKC2	CROOK	CO	0.11	0.12

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CBYN8	CROSBY	ND	0.11E	0.12
CUTS2	CUSTER (AMRAD)	SD	0.11E	0.12
DTWN1	DALTON 13W	NE	0.11E	0.12
DDC	DODGE CITY	KS	0.11	0.12
DFRW4	DOUBLE FOUR RANCH	WY	0.11E	0.12
SUMM8	EAST GLACIER 11SW	MT	0.11E	0.12
ERLN1	EMERALD 2NW	NE	0.11E	0.12
RSNW4	FALES ROCK RAWS	WY	0.11E	0.12
FIRN1	FIRTH	NE	0.11E	0.12
LKSS2	FORT THOMPSON	SD	0.11E	0.12
GALS2	GALENA	SD	0.11E	0.12
GCC	GILLETTE	WY	0.11	0.12
GLNN8	GLEN ULLIN	ND	0.11E	0.12
ADAM008	GLENVIL 2WSW	NE	0.11E	0.12
GTBK1	GREAT BEND	KS	0.11E	0.12
KMLS2	GROTON 7NW	SD	0.11E	0.12
HSI	HASTINGS	NE	0.11	0.12
HECS2	HECLA	SD	0.11E	0.12
HLLC2	HIGHLAND DITCH	CO	0.11E	0.12
HIMS2	HIGHMORE 23N	SD	0.11E	0.12
MDCS2	HILL CITY 8SW	SD	0.11E	0.12
HORC2	HOHNHOLZ RANCH	CO	0.11E	0.12
HORS2	HURON	SD	0.11E	0.12
HRHS2	HURON (AMRAD)	SD	0.11E	0.12
HURS2	HURON, JAMES R	SD	0.11	0.12
IRQS2	IROQUOIS	SD	0.11E	0.12
ICAM7	K C (OP ALERT #1800)	MO	0.11E	0.12
GAKS2	KEYSTONE 4SW	SD	0.11E	0.12
KLOM8	KILO RAWS	MT	0.11E	0.12
KYLS2	KYLE	SD	0.11E	0.12
LKCM7	LAKE CITY, LTL BLUE	MO	0.11E	0.12
LADK1	LARNED	KS	0.11E	0.12
LION1	LINCOLN FIRE STA 2	NE	0.11E	0.12
LNSM7	LINNEUS, LOCUST CR	MO	0.11	0.12
LVGM8	LIVINGSTON 12S	MT	0.11E	0.12
LGPN1	LODGEPOLE 8N	NE	0.11E	0.12
LNCS2	LYONS, ST VRRAIN CR	CO	0.11E	0.12
RNMS2	MT RUSHMORE NATL MEM	SD	0.11E	0.12
NYEM8	NYE #2	MT	0.11E	0.12
OSMN1	OSMOND	NE	0.11E	0.12
PHGM8	PHILIPSBURG RAWS	MT	0.11E	0.12

PCUS2	PORCUPINE	SD	0.11	0.12
PTIK1	PORTIS, NF SOLOMON R	KS	0.11E	0.12
WCAS2	PRINGLE SSE	SD	0.11	0.12
SBCM7	SPRING BRANCH CREEK	MO	0.11	0.12
STKN1	STOCKVILLE	NE	0.11E	0.12
SWLM8	SWAN LAKE	MT	0.11	0.12
TRTN8	TROTTERS, BEAVER CR	ND	0.11E	0.12
UUUK1	UNIONTOWN, MARMATON R	KS	0.11E	0.12
WLDC2	WALDEN	CO	0.11E	0.12
WNDS2	WIND CAVE NATL PARK	SD	0.11E	0.12
WRTW4	WRIGHT	WY	0.11E	0.12
YLWM8	YELLOW MULE RAWS	MT	0.11E	0.12

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ABTK1	ALBERT SSE	KS	0.10	0.11
AMNN8	ALMONT	ND	0.10E	0.11
ARNP1	ARAPAHOE, MUDDY CR	NE	0.10E	0.11
AROC2	ARROW	CO	0.10	0.11
BLNM8	BALLANTINE	MT	0.10E	0.11
BSCW4	BASE CAMP, MORAN 9NE	WY	0.10	0.11
BTW4	BATTLE MOUNTAIN	WY	0.10	0.11
BATS2	BATTLE MTN NFS	SD	0.10E	0.11
BTMC2	BATTLEMENT MESA	CO	0.10E	0.11
BRNN1	BERTRAND	NE	0.10E	0.11
BGEW4	BIG GOOSE	WY	0.10	0.11
GSWM8	BIG SKY 3S	MT	0.10E	0.11
BSTM8	BIG SKY RESORT	MT	0.10E	0.11
BSDW4	BONE SPRINGS DIVIDE	WY	0.10	0.11
BRCM8	BRACKETT CREEK	MT	0.10	0.11
BRAS2	BRANDON	SD	0.10E	0.11
BUEW4	BUFORD SSE	WY	0.10E	0.11
BSHN1	BUSHNELL, LODGEPOLE	NE	0.10E	0.11
CLVM8	CALVERT CREEK	MT	0.10	0.11
CRRM8	CARROT BASIN	MT	0.10	0.11
CSHM8	CASHE CREEK	MT	0.10E	0.11
CLAN1	CLATONIA	NE	0.10E	0.11
CBKS2	COLD BROOK DAM	SD	0.10E	0.11
CRBI1	CRAB CREEK	ID	0.10	0.11
CRYM8	CRYSTAL LAKE	MT	0.10	0.11
CUSS2	CUSTER	SD	0.10E	0.11
BKFS2	CUSTER 10NW	SD	0.10E	0.11
DDMM8	DEADMAN CREEK	MT	0.10	0.11
DDMC2	DEADMAN HILL	CO	0.10	0.11
DERI4	DERBY	IA	0.10E	0.11
DKEC2	DRAKE, BIG THOMPSON	CO	0.10	0.11
DKKC2	DRAKE, NORTH FORK	CO	0.10E	0.11
EKPW4	ELKHART PARK	WY	0.10	0.11
EMDN1	EMERALD 1W	NE	0.10E	0.11
FSHM8	FISHER CREEK	MT	0.10	0.11
FTRK1	FT RILEY, KANSAS R	KS	0.10E	0.11
GLNS2	GALENA, BEAR BUTTE C	SD	0.10E	0.11
GBBI1	GIBBONSVILLE	ID	0.10E	0.11
GLHS2	GLENHAM	SD	0.10E	0.11

GRMM7	GRAHAM	MO	0.10E	0.11
GRZM7	GRAHAM, NODAWAY R	MO	0.10E	0.11
GVSU4	GRAVE SPRINGS	WY	0.10	0.11
GBD	GREAT BEND AIRPORT	KS	0.10E	0.11
HBTI4	HAMBURG #2	IA	0.10E	0.11
HMBI4	HAMBURG, NISHNABOTNA	IA	0.10	0.11
HSTN1	HASTINGS 4N	NE	0.10E	0.11
GID	HASTINGS 4N	NE	0.10E	0.11
HMTW4	HEART MOUNTAIN	WY	0.10E	0.11
HOSS2	HOT SPRINGS	SD	0.10E	0.11
HOHS2	HOT SPRINGS (AMRAD)	SD	0.10E	0.11
HOTS2	HOT SPRINGS, FALL R	SD	0.10	0.11
HUMS2	HUMBOLT	SD	0.10E	0.11
HNTK1	HUNTER	KS	0.10	0.11

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IDCM7	INDEPENDENCE	MO	0.10E	0.11
INN1	INMAN	KS	0.10	0.11
ADAM002	JUNIATA 6SSW	NE	0.10E	0.11
ADAM010	JUNIATA 7WSW	NE	0.10E	0.11
EAR	KEARNEY	NE	0.10E	0.11
KRNN1	KEARNEY 4NE	NE	0.10	0.11
GNKS2	KEYSTONE 1SW	SD	0.10	0.11
3OI	LAMONI	IA	0.10	0.11
OAEW4	LARAMIE 22SW	WY	0.10E	0.11
LCLN1	LINCOLN FIRE STA 4	NE	0.10E	0.11
LLNN1	LINCOLN FIRE STA 5	NE	0.10E	0.11
LLFM8	LOGAN 1E	MT	0.10	0.11
LOGM8	LOGAN, GALLATIN R	MT	0.10E	0.11
BSKM8	LONE MOUNTAIN	MT	0.10	0.11
LWTM8	LOWER TWIN	MT	0.10	0.11
LUBM8	LUBRECHT FLUME	MT	0.10	0.11
JSLN8	LUDDEN 6SW, JAMES R	ND	0.10E	0.11
LYNC2	LYNX PASS	CO	0.10	0.11
MANM8	MANY GLACIER SNT	MT	0.10	0.11
MYLM7	MARYVILLE 1E	MO	0.10E	0.11
MYVM7	MARYVILLE, 102 RIVER	MO	0.10	0.11
MNOS2	MENNO	SD	0.10E	0.11
MONN8	MONTPELIER	ND	0.10	0.11
MTRS2	MONTROSE 8N	SD	0.10E	0.11
MNPM8	MONUMENT PEAK	MT	0.10	0.11
MOKI1	MOOSE CREEK	ID	0.10	0.11
MGHW4	MOSIER GULCH	WY	0.10	0.11
NEVC2	NEVER SUMMER	CO	0.10	0.11
HRAN8	NEW HRADEC, GREEN R	ND	0.10E	0.11
ONNS2	ONIDA 22NE	SD	0.10E	0.11
PHTC2	PHANTOM VALLEY	CO	0.10	0.11
PTTS2	PLATTE (AMRAD)	SD	0.10E	0.11
PWDW4	POWDER RIVER PASS	WY	0.10	0.11
REDN1	RED CLOUD	NE	0.10E	0.11
ENSI4	RIVERTON, EAST NISH	IA	0.10	0.11
ROAC2	ROACH	CO	0.10	0.11
RKPM8	ROCKER PEAK	MT	0.10	0.11

ROCM8	ROCKY BOY	MT	0.10	0.11
ADAM006	ROSELAND 3SW	NE	0.10E	0.11
SAJM8	SACAJAWEA	MT	0.10	0.11
SDMM8	SADDLE MOUNTAIN	MT	0.10	0.11
SLNI1	SALMON	ID	0.10E	0.11
SHCM8	SHORT CREEK	MT	0.10	0.11
SKRW4	SNAKE RIVER STATION	WY	0.10	0.11
SNIW4	SNIDER BASIN	WY	0.10	0.11
SPRM8	SPUR PARK	MT	0.10	0.11
STFK1	ST FRANCIS 8NW	KS	0.10E	0.11
STES2	STEPHAN 10SE	SD	0.10E	0.11
SRPN1	SURPRISE, BIG BLUE R	NE	0.10E	0.11
SYRW4	SYLVAN ROAD	WY	0.10	0.11
TOGW4	TOGWOTEE PASS	WY	0.10	0.11
TOWC2	TOWER	CO	0.10	0.11
TWF	TWIN FALLS AIRPORT	ID	0.10E	0.11

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VADC2	VIRGINIA DALE 7NE	CO	0.10E	0.11
QADK1	WAKEENEY 18S	KS	0.10E	0.11
WADC2	WALDEN	CO	0.10E	0.11
WHTI4	WASHTA	IA	0.10E	0.11
LPTW4	WESTON, LTL POWDER R	WY	0.10E	0.11
WHEI1	WHITE ELEPHANT	ID	0.10	0.11
JVWM8	WHITEHALL 7SW	MT	0.10E	0.11
WHHM8	WHITEHALL RAWS	MT	0.10E	0.11
WNDW4	WINDY PEAK	WY	0.10	0.11
YOUW4	YOUNTS PEAK	WY	0.10	0.11
ACYS2	ACADEMY 2NE	SD	0.09E	0.10
ALSM8	ALDER 17S	MT	0.09E	0.10
AUBK1	AUBURN	KS	0.09E	0.10
COWW4	BAGGS 21NNE	WY	0.09E	0.10
BLSM7	BLUE SPRINGS	MO	0.09E	0.10
BLUM7	BLUE SPRINGS #2	MO	0.09E	0.10
BZEM8	BOZEMAN STATE UNIV	MT	0.09E	0.10
BRLM7	BURLINGTON JCT 1W	MO	0.09E	0.10
BTKM8	BURNT CREEK RAWS	MT	0.09E	0.10
BTLM7	BUTLER 4SW, MIAMI CR	MO	0.09E	0.10
CHOM7	CHILLICOTHE RAWS	MO	0.09	0.10
CUT	CUSTER	SD	0.09	0.10
CRRS2	CUSTER 2SW RAWS	SD	0.09E	0.10
DIK	DICKINSON AIRPORT	ND	0.09	0.10
EGHM8	EAGLEHEAD	MT	0.09E	0.10
EDMS2	EDGEMONT (AMRAD)	SD	0.09E	0.10
ELKS2	ELK POINT 13NE	SD	0.09E	0.10
ERKS2	EUREKA	SD	0.09E	0.10
GOLC2	GOLDEN 3S	CO	0.09E	0.10
GEVC2	GOLDEN 4SW	CO	0.09E	0.10
GONC2	GOLDEN 6NW	CO	0.09E	0.10
CSFC2	GOULD 4SE	CO	0.09E	0.10
GCOS2	GRACE COOLIDGE CR	SD	0.09E	0.10
DLSM7	GRAIN VALLEY	MO	0.09	0.10
HANW4	HANNA, MEDICINE BOW	WY	0.09	0.10

HEBN8	HEBRON	ND	0.09E	0.10
HOWS2	HOWARD	SD	0.09E	0.10
SBRM8	HUNTLEY EXP STATION	MT	0.09E	0.10
HRNS2	HURON	SD	0.09E	0.10
HYRW4	HYATT RANCH	WY	0.09E	0.10
BRTM7	INDEPENDENCE 39TH ST	MO	0.09E	0.10
INDM7	INDEPENDENCE, ADAIR C	MO	0.09	0.10
KILN8	KILLDEER 8NW	ND	0.09E	0.10
LKVM8	LAKEVIEW	MT	0.09E	0.10
LEIW4	LEIGH CREEK RAW	WY	0.09E	0.10
LBNB1	LINCOLN FIRE STA 3	NE	0.09E	0.10
LTHN8	LITCHVILLE 2NW	ND	0.09E	0.10
LNGM8	LOGAN 2W	MT	0.09E	0.10
LOWS2	LOWRY	SD	0.09E	0.10
RJTW4	LUSK 25NE	WY	0.09E	0.10
MTEW4	MEETEETSE	WY	0.09E	0.10
MROS2	MURDO 7WSW	SD	0.09E	0.10
NTAK1	NATOMA	KS	0.09E	0.10

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ID	DESCRIPTION	STATE	06/17	PERIOD SUM
OLYC2	OLYMPUS DAM	CO	0.09E	0.10
PTHW4	PATHFINDER DAM	WY	0.09E	0.10
PHIM8	PHILIPSBURG 2S	MT	0.09E	0.10
HAFW4	PINEDALE	WY	0.09E	0.10
PLKN1	POLK	NE	0.09E	0.10
RICN8	RICHARDTON, HEART R	ND	0.09E	0.10
RCHC2	ROACH	CO	0.09E	0.10
CRSW4	SPENCER, CHEYENNE R	WY	0.09	0.10
STBM7	STANBERRY	MO	0.09E	0.10
SLBI4	STORM LAKE 2E	IA	0.09E	0.10
SUNW4	SUNSHINE 3NE	WY	0.09	0.10
WYWH1	TEN SLEEP 5NNW	WY	0.09E	0.10
TGW4	TOGWOTEE	WY	0.09E	0.10
TTNM7	TRENTON	MO	0.09	0.10
RANS2	VEBLEN 5W	SD	0.09E	0.10
VERN8	VERONA	ND	0.09E	0.10
WSWS2	WESSINGTON SPRNG 7SW	SD	0.09E	0.10
WSTW4	WESTON 15N	WY	0.09E	0.10
WLLW4	WILLWOOD DAM	WY	0.09E	0.10
SQFM8	WISDOM 12NNE	MT	0.09E	0.10
WRVM8	WISE RIVER 3WNW	MT	0.09E	0.10
WORW4	WORLAND	WY	0.09E	0.10
WRL	WORLAND AIRPORT	WY	0.09	0.10
WHRW4	WORLAND, BIGHORN R	WY	0.09E	0.10
WRHW4	WRIGHT 16NW	WY	0.09E	0.10
YNTW4	YOUNTS PEAK	WY	0.09E	0.10
EVS2	ABERDEEN 2E	SD	0.08E	0.09
ALVW4	ALCOVA 17NW	WY	0.08E	0.09
BERN1	BERTRAND	NE	0.08E	0.09
WEBS009	BLADEN 4SW	NE	0.08E	0.09
BSZM7	BLUE SPRINGS DAM	MO	0.08E	0.09
LMBW4	BOLES SPRING	WY	0.08E	0.09
BRJM7	BURLINGTON JUNCTION	MO	0.08E	0.09



BSSN1	BUSHNELL 15S	NE	0.08	0.09
BUTM7	BUTLER	MO	0.08	0.09
MOFSA013	BUTLER 1SSW	MO	0.08E	0.09
CARW4	CARPENTER 3N	WY	0.08E	0.09
CAVS2	CAVOUR 10S	SD	0.08E	0.09
CTLN1	CENTRAL CITY	NE	0.08E	0.09
COPW4	CODY	WY	0.08E	0.09
COD	CODY	WY	0.08	0.09
OBW4	CODY 12SE	WY	0.08E	0.09
CRKC2	CROOK	CO	0.08E	0.09
CSPS2	CUSTER 12ESE RAWS	SD	0.08E	0.09
CCCS2	CUSTER CROSSING CAMP	SD	0.08E	0.09
DOMC2	DEAD MAN HILL	CO	0.08E	0.09
DERM8	DEER LODGE 3W	MT	0.08E	0.09
DNDN8	DICKINSON DAM	ND	0.08E	0.09
DCKN8	DICKINSON EXP STN	ND	0.08E	0.09
ZOFK1	DIGHTON	KS	0.08E	0.09
DIVM8	DIVIDE	MT	0.08E	0.09
EFLM7	EAST FORK LTL BLUE R	MO	0.08	0.09
EDGN8	EDGELEY 3W	ND	0.08E	0.09

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ID	DESCRIPTION	STATE	06/17	PERIOD SUM
EDSN1	EDISON	NE	0.08E	0.09
EDSM7	ELDORADO SPRINGS	MO	0.08	0.09
ENNM8	ENNIS RAWS	MT	0.08E	0.09
EVYI4	EVERLY 3WNW	IA	0.08	0.09
0190N8	FORBES 4NE	ND	0.08E	0.09
FSYM8	FORSYTH	MT	0.08E	0.09
GNVS2	GANN VALLEY	SD	0.08	0.09
HLDS2	HARROLD 12SSW	SD	0.08E	0.09
ZEAK1	HAYS 11NE	KS	0.08E	0.09
TCHN8	HEART R ABV TSCHIDA	ND	0.08E	0.09
HERS2	HERMOSA, BATTLE CR	SD	0.08	0.09
SHIM5	HILLS	MN	0.08E	0.09
HTTM7	HORTON 2S	MO	0.08	0.09
HORM7	HORTON 3NE	MO	0.08E	0.09
HTNM7	HORTON, LTL OSAGE R	MO	0.08E	0.09
IWDI4	INWOOD	IA	0.08E	0.09
ICBM7	K C (OP ALERT #1900)	MO	0.08E	0.09
KONK1	KANORADO	KS	0.08E	0.09
KNYM7	KANSAS CITY 71 HWY	MO	0.08E	0.09
KEAN1	KEARNEY 3S, PLATTE R	NE	0.08E	0.09
KNGN1	KINGSLEY DAM	NE	0.08	0.09
KRKM7	KIRKSVILLE (KIRX)	MO	0.08	0.09
LVRM8	LAKEVIEW RIDGE	MT	0.08E	0.09
LAUN1	LAUREL	NE	0.08E	0.09
WEBS003	LAWRENCE 4WSW	NE	0.08E	0.09
YQL	LETHBRIDGE	AB	0.08E	0.09
LWTN1	LEWISTON	NE	0.08E	0.09
LNCM8	LINCOLN 2NE RAWS	MT	0.08E	0.09
LNCN1	LINCOLN 4SE	NE	0.08E	0.09
LNHN1	LINCOLN FIRE STA 10	NE	0.08E	0.09
LNDN1	LINCOLN FIRE STA 6	NE	0.08E	0.09

LVAM7	LIVONIA	MO	0.08E	0.09
LVZM7	LIVONIA, CHARITON R	MO	0.08	0.09
LMT C2	LONGMONT 6NW	CO	0.08E	0.09
LORI4	LORIMOR	IA	0.08E	0.09
COB085	LYONS 1NNW	CO	0.08E	0.09
MLNM7	MILAN	MO	0.08E	0.09
MHE	MITCHELL AIRPORT	SD	0.08	0.09
PHYM8	NEIHART 6S RAW	MT	0.08E	0.09
NMOS2	NEMO 1SW	SD	0.08E	0.09
NMRC2	NEW RAYMER 21N	CO	0.08E	0.09
PRKM8	PARK CITY 1NE	MT	0.08E	0.09
PIER008	PIERCE 9W	NE	0.08E	0.09
PBFW4	PINE BLUFFS 5W	WY	0.08E	0.09
RRDM8	RED ROCK RAW	MT	0.08E	0.09
RBDW4	REDBIRD	WY	0.08E	0.09
RDTN8	RICHARDTON ABBEY	ND	0.08E	0.09
WREM8	ROSCOE, W ROSEBUD CR	MT	0.08E	0.09
SAVM8	SAVAGE	MT	0.08E	0.09
SPKM7	SPICKARD 7W	MO	0.08	0.09
TPEM8	TEPEE CREEK	MT	0.08E	0.09
OCW4	THERMOPOLIS, OWL CR	WY	0.08E	0.09
UNDN8	UNDERWOOD	ND	0.08	0.09

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ZEJK1	VICTORIA	KS	0.08E	0.09
VIRN1	VIRGINIA	NE	0.08E	0.09
BERS2	WANBLEE 9WSW	SD	0.08E	0.09
WVRN1	WAVERLY	NE	0.08E	0.09
MSRC2	WELLINGTON 17NNE	CO	0.08E	0.09
WLDW4	WHEATLAND 4N	WY	0.08E	0.09
WHTM8	WHITE MILL	MT	0.08E	0.09
WIFC2	WILLIAMS FORK DAM	CO	0.08E	0.09
WFDC2	WILLIAMS FORK DAM	CO	0.08E	0.09
WLSN1	WILSONVILLE	NE	0.08E	0.09
WISN1	WISNER	NE	0.08E	0.09
WORM7	WORTH 4W	MO	0.08E	0.09
ADRN8	ADRIAN	ND	0.07E	0.08
SEW4	ALCOVA, SWEETWATER R	WY	0.07	0.08
SMMC2	ARVADA	CO	0.07E	0.08
MGLM8	BABB 10SW	MT	0.07E	0.08
BAGW4	BAGGS	WY	0.07E	0.08
DOHS2	BAKER PARK RAW	SD	0.07E	0.08
BOCM7	BOLCKOW, 102 RIVER	MO	0.07	0.08
BWSM8	BOZEMAN 4W AGRIMET	MT	0.07E	0.08
CANN8	CARSON	ND	0.07E	0.08
CLAW4	CLARK 3NE	WY	0.07E	0.08
COOW4	CODY 5SE	WY	0.07E	0.08
ODIW4	CODY RADIO	WY	0.07E	0.08
CRKS2	CROOKS	SD	0.07E	0.08
WCCS2	CROOKS, WILLOW CR	SD	0.07	0.08
RIPS2	DEADMAN GULCH	SD	0.07	0.08
DEVW4	DEAVER	WY	0.07E	0.08
DBYM8	DERBY MOUNTAIN RAW	MT	0.07E	0.08

0759N8	DICKINSON 2NW	ND	0.07E	0.08
ZODK1	DIGHTON	KS	0.07E	0.08
DLLC2	DILLON 1E	CO	0.07	0.08
COSU7	DILLON 1WNW	CO	0.07E	0.08
DIIC2	DILLON RESERVOIR	CO	0.07E	0.08
COLR225	DRAKE 3NNE	CO	0.07E	0.08
EDTS2	EDGEMONT 13NW	SD	0.07E	0.08
RDCS2	EDGEMONT 7NE	SD	0.07E	0.08
EDGS2	EDGEMONT, CHEYENNE R	SD	0.07E	0.08
COLR220	ESTES PARK 1SSE	CO	0.07E	0.08
ETSC2	ESTES PARK 1SSE	CO	0.07	0.08
COLR240	ESTES PARK 2NE	CO	0.07E	0.08
FULS2	FULTON, ROCK CR	SD	0.07E	0.08
GAAM8	GALENA RAWS	MT	0.07E	0.08
GIBN1	GIBBON	NE	0.07E	0.08
GLTW4	GILLETTE	WY	0.07E	0.08
GLCC2	GLEN COMFORT	CO	0.07E	0.08
GCMC2	GLEN COMFORT	CO	0.07E	0.08
COJF257	GOLDEN 4NNW	CO	0.07E	0.08
COJF16	GOLDEN 4WNW	CO	0.07E	0.08
GNTM7	GRANT CITY	MO	0.07E	0.08
MOWH1	GRANT CITY 4WSW	MO	0.07E	0.08
GRTM7	GRANT CITY 5WSW	MO	0.07E	0.08
GCRW4	GRASS CREEK DIVIDE	WY	0.07E	0.08

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HARK1	HARLAN	KS	0.07E	0.08
HAFS2	HARTFORD	SD	0.07E	0.08
HRTM8	HEART BUTTE	MT	0.07E	0.08
HGMS2	HIGHMORE 16N	SD	0.07E	0.08
HODS2	HOWARD 11WSW	SD	0.07E	0.08
HNZM7	HUNTSVILLE, CHARITON	MO	0.07	0.08
INWI4	INWOOD	IA	0.07E	0.08
JEF	JEFFERSON CITY	MO	0.07	0.08
JFFM7	JEFFERSON CITY	MO	0.07E	0.08
KLYM8	KELLY RAWS	MT	0.07E	0.08
FRBS2	KEYSTONE 18SE	SD	0.07E	0.08
RUSS2	KEYSTONE 5SE	SD	0.07E	0.08
VCWK1	LACLEDE, VERMILLION	KS	0.07E	0.08
NOLC2	LAKEWOOD	CO	0.07E	0.08
LWD	LAMONI	IA	0.07	0.08
LRVC2	LONG DRAW RES SNOTEL	CO	0.07E	0.08
MPHK1	MAPLE HILL	KS	0.07E	0.08
MELM8	MELSTONE	MT	0.07E	0.08
MIRS2	MILLER 1NW	SD	0.07E	0.08
MOLM8	MOLT 6SW	MT	0.07E	0.08
MONS2	MONTROSE	SD	0.07E	0.08
MLNN1	MULLEN	NE	0.07E	0.08
MHN	MULLEN	NE	0.07E	0.08
NRMC2	NEW RAYMER 21N	CO	0.07E	0.08
NRBI4	NORTHBORO	IA	0.07E	0.08
NRTC2	NORTHGLENN	CO	0.07	0.08
ODSN1	ODESSA	NE	0.07E	0.08

OTOI4	OTO	IA	0.07E	0.08
PTBN8	PETTIBONE	ND	0.07E	0.08
PHLN1	PHILLIPS 4SE	NE	0.07E	0.08
PIRN1	PIERCE #1	NE	0.07	0.08
PRCN1	PIERCE 2SE	NE	0.07E	0.08
ECRN1	PINE BLUFFS 8SE RAWS	NE	0.07E	0.08
PNDW4	PINEDALE	WY	0.07E	0.08
PINW4	PINEDALE 1NE	WY	0.07E	0.08
POF	POPLAR BLUFF AIRPORT	MO	0.07	0.08
SRMS2	RAMONA	SD	0.07E	0.08
RIHM7	RICH HILL	MO	0.07E	0.08
RHHM7	RICH HILL (DNR)	MO	0.07E	0.08
RVRN1	RIVERTON, REPUBLICAN	NE	0.07E	0.08
RVTN1	RIVERTON, THOMPSON C	NE	0.07E	0.08
RKRW4	ROCK RIVER 13NNW	WY	0.07E	0.08
SARW4	SARATOGA	WY	0.07E	0.08
SFHW4	SARATOGA HATCHERY	WY	0.07E	0.08
SRAW4	SARATOGA, N PLATTE R	WY	0.07	0.08
FSD	SIOUX FALLS	SD	0.07	0.08
SFLS2	SIOUX FALLS 38A	SD	0.07E	0.08
FSDS2	SIOUX FALLS WFO	SD	0.07E	0.08
SKDM7	SKIDMORE	MO	0.07E	0.08
DUSM8	SWIFT DAM	MT	0.07E	0.08
TRIM8	TRIDENT	MT	0.07E	0.08
CHER010	VALENTINE 19SSW	NE	0.07E	0.08
VALS2	VALLEY SPRINGS	SD	0.07E	0.08

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WAKS2	WAKPALA	SD	0.07E	0.08
WLKS2	WALL LAKE	SD	0.07E	0.08
WLPS2	WALL LAKE	SD	0.07	0.08
WARM8	WARRICK 2NW	MT	0.07E	0.08
WESN1	WESTON 3NW	NE	0.07E	0.08
WPTS2	WESTPORT	SD	0.07	0.08
BDLM8	WHITEHALL 4SW RAWS	MT	0.07E	0.08
WCRM8	WICKED CREEK RAWS	MT	0.07E	0.08
WISM8	WISDOM	MT	0.07E	0.08
OLF	WOLF POINT	MT	0.07	0.08
WOPW4	WOODS, PIONEER CANAL	WY	0.07	0.08
WDWN8	WOODWORTH 3E	ND	0.07E	0.08
WGTW4	WRIGHT 12W	WY	0.07E	0.08
ECKS2	ABERDEEN 2NE	SD	0.06E	0.06
AKRI4	AKRON, BIG SIOUX R	IA	0.06E	0.06
ALTN8	ALMONT, BIG MUDDY CR	ND	0.06E	0.06
CRDK1	AUGULIS, RICH	KS	0.06E	0.06
BVCN1	BEAVER CITY	NE	0.06E	0.06
BEVN1	BEAVER CITY 4WSW	NE	0.06E	0.06
BIL	BILLINGS INTL AP	MT	0.06	0.06
BYZ	BILLINGS WFO	MT	0.06E	0.06
BGRM8	BOZEMAN 12NE	MT	0.06E	0.06
BTPS2	BUFFALO TRADING POST	SD	0.06E	0.06
BUJW4	BURGESS RAWS	WY	0.06	0.06
CARS2	CARTHAGE	SD	0.06E	0.06

OACK1	CEDAR BLUFF DAM	KS	0.06E	0.06
ELSK1	CEDAR BLUFF DAM 4NNE	KS	0.06E	0.06
CHLS2	CHELSEA	SD	0.06E	0.06
CLOI4	CLIO 4NW	IA	0.06E	0.06
CODW4	CODY	WY	0.06E	0.06
CCPM7	CONCEPTION	MO	0.06	0.06
DELK1	DELIA 3E, SOLDIER CR	KS	0.06E	0.06
DTON1	DENTON 2N	NE	0.06E	0.06
FEDC2	DENVER 7W	CO	0.06E	0.06
DBSI1	DUBOIS EXP STATION	ID	0.06E	0.06
EMTS2	EDGEMONT	SD	0.06	0.06
EGMS2	EDGEMONT 23NNW	SD	0.06E	0.06
EDIN1	EDISON 2E, TURKEY CR	NE	0.06E	0.06
ELLN8	ELLENDALE 1N	ND	0.06E	0.06
ENSM8	ENNIS	MT	0.06E	0.06
COLR221	ESTES PARK 1E	CO	0.06E	0.06
COLR227	ESTES PARK 1NE	CO	0.06E	0.06
COLR230	ESTES PARK 2SSW	CO	0.06E	0.06
COLR223	ESTES PARK 4SSW	CO	0.06E	0.06
ESPC2	ESTES PARK 4WNW	CO	0.06	0.06
EWSN1	EWING, S ELKHORN	NE	0.06E	0.06
FLMM7	FLEMINGTON 3E	MO	0.06	0.06
FRZC2	FRASER	CO	0.06E	0.06
FFDS2	FREDERICK	SD	0.06E	0.06
FTNK1	FULTON, LTL OSAGE R	KS	0.06E	0.06
GLVI4	GALVA	IA	0.06E	0.06
GARS2	GARRETSON	SD	0.06E	0.06
GBBN1	GIBBON 3ENE, WOOD R	NE	0.06E	0.06

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GBNM8	GIBSON 2NE	MT	0.06E	0.06
GBSM8	GIBSON 4SW	MT	0.06E	0.06
GTTW4	GILLETTE 12S	WY	0.06E	0.06
GLDW4	GLENDO RESERVOIR	WY	0.06E	0.06
GOVK1	GOVE 4W, HACKBERRY C	KS	0.06E	0.06
GVRC2	GROVER	CO	0.06E	0.06
0182N8	GUELPH 1NW	ND	0.06E	0.06
HDRN1	HADAR #2	NE	0.06E	0.06
HADN1	HADAR 1SE	NE	0.06E	0.06
HGEN8	HAGUE	ND	0.06E	0.06
HTFS2	HARTFORD, SKUNK CR	SD	0.06E	0.06
HAWI4	HAWARDEN, BIG SIOUX R	IA	0.06E	0.06
HYS	HAYS AIRPORT	KS	0.06	0.06
HTBM8	HEART BUTTE 1NW	MT	0.06E	0.06
HLDN1	HOLDREGE	NE	0.06E	0.06
HMBK1	HUMBOLDT	KS	0.06	0.06
KDKS2	KADOKA 6S, WHITE R	SD	0.06	0.06
KRRM7	KC ROCKHILL, BRUSH CR	MO	0.06E	0.06
KSTS2	KEYSTONE, SPRING CR	SD	0.06E	0.06
STLC2	LEROY 9WSW	CO	0.06E	0.06
LSTI4	LESTER	IA	0.06E	0.06
SNOM8	LEWISTOWN 20SW	MT	0.06E	0.06
CEFM8	LIMA 36ENE	MT	0.06E	0.06

LCNN1	LINCOLN, SALT CR	NE	0.06E	0.06
LNDC2	LINDON 5WNW	CO	0.06	0.06
LGIK1	LONG ISLAND 1N	KS	0.06E	0.06
LGNC2	LONGMONT 2W	CO	0.06E	0.06
LROM7	LOWRY CITY	MO	0.06E	0.06
LCRM7	LUCERNE, MEDICINE CR	MO	0.06E	0.06
LYNS2	LYONS 5SSW	SD	0.06E	0.06
WYNB9	MANVILLE 13SSW	WY	0.06E	0.06
MBFW4	MEDICINE BOW	WY	0.06E	0.06
MBOW4	MEDICINE BOW	WY	0.06	0.06
YXH	MEDICINE HAT	AB	0.06E	0.06
MERS2	MILLER 15S	SD	0.06E	0.06
MJTW4	MORAN 5SW	WY	0.06E	0.06
MRAW4	MORAN 5WSW	WY	0.06E	0.06
OPGK1	O P #1600 (HAWTH VY)	KS	0.06E	0.06
ORIW4	ORIN 2E, N PLATTE R	WY	0.06	0.06
OSCM7	OSCEOLA	MO	0.06E	0.06
PTDW4	PATHFINDER DAM	WY	0.06E	0.06
PEDN1	PENDER, LOGAN CR	NE	0.06E	0.06
RLKC2	RED FEATHR LAKES 2SE	CO	0.06E	0.06
CHRS2	REDSHIRT, CHEYENNE R	SD	0.06	0.06
RENS2	RENNER	SD	0.06E	0.06
RIVN1	RIVERDALE, WOOD R	NE	0.06E	0.06
RKRI4	ROCK RAPIDS	IA	0.06E	0.06
RAPI4	ROCK RAPIDS, ROCK R	IA	0.06E	0.06
STPN1	ST PAUL 4N	NE	0.06	0.06
SPUN1	ST PAUL, NORTH LOUP	NE	0.06E	0.06
STEN8	STEELE 3N	ND	0.06E	0.06
TEAS2	TEA (AMRAD)	SD	0.06E	0.06
THMW4	THERMOPOLIS	WY	0.06E	0.06

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THOC2	THORNTON	CO	0.06E	0.06
TULN8	TURTLE LAKE	ND	0.06E	0.06
TNBM8	TWIN BRIDGES	MT	0.06E	0.06
RVNW4	UPTON 19SW	WY	0.06E	0.06
UPNW4	UPTON 19SW	WY	0.06E	0.06
VLYK1	VALLEY FALLS 3SW	KS	0.06	0.06
VDGN1	VERDIGRE	NE	0.06E	0.06
VRNS2	VERMILLION	SD	0.06E	0.06
SVMS2	VERMILLION STORMNET	SD	0.06E	0.06
QAAK1	WAKEENEY 22SSE	KS	0.06E	0.06
WAKN1	WAKEFIELD	NE	0.06E	0.06
WKPS2	WAKPALA	SD	0.06E	0.06
WEEK1	WHEELER 8S	KS	0.06E	0.06
LMCN8	WILLISTON, LTL MUDDY	ND	0.06E	0.06
WTPC2	WINTER PARK	CO	0.06E	0.06
FWGC2	WINTER PARK 4SSE	CO	0.06E	0.06
WLHN1	WOLBACH	NE	0.06E	0.06
COWA50	WOODROW 17SSE	CO	0.06E	0.06
ABES2	ABERDEEN 4NW	SD	0.05E	0.05
KGIS2	ABERDEEN 5W	SD	0.05E	0.05
COEL2	AGATE 9SE	CO	0.05E	0.05

ATLN1	ATLANTA 2WNW	NE	0.05E	0.05
BCNI4	BEACONSFIELD	IA	0.05	0.05
BZMM8	BOZEMAN 6W EXP FARM	MT	0.05E	0.05
COLR675	BUCKEYE 5NNE	CO	0.05E	0.05
BWXW4	BUFFALO BILL RES	WY	0.05E	0.05
BRRW4	BURRIS	WY	0.05E	0.05
BTTM8	BUTTE 8S	MT	0.05E	0.05
CNNS2	CANTON	SD	0.05E	0.05
CAPM7	CAPLINGER MILLS 4NW	MO	0.05E	0.05
CMZM7	CAPLINGER MILLS GDDS	MO	0.05E	0.05
CNTI4	CENTERVILLE	IA	0.05	0.05
CPMN1	CHAPMAN	NE	0.05E	0.05
COII4	COIN	IA	0.05E	0.05
OABK1	COLLYER	KS	0.05E	0.05
COLS2	COLTON	SD	0.05E	0.05
CRR14	CORRECTIONVILLE 1SW	IA	0.05E	0.05
CKSC2	CROOK, SO PLATTE R	CO	0.05	0.05
DNBN1	DANNEBROG #2	NE	0.05E	0.05
DABN1	DANNEBROG 4NW	NE	0.05E	0.05
DBGN1	DANNEBROG, TURKEY CR	NE	0.05	0.05
DSMS2	DE SMET	SD	0.05E	0.05
DROS2	DEADWOOD 15SSE	SD	0.05E	0.05
DLMM8	DELMOE RAWS	MT	0.05E	0.05
DGLW4	DOUGLAS 1SE	WY	0.05E	0.05
COLR720	DRAKE 5WNW	CO	0.05E	0.05
EGLC2	EAGLE 13W	CO	0.05E	0.05
EGLM8	EAST GLACIER	MT	0.05E	0.05
ELSM7	ELDORADO SPRINGS 12E	MO	0.05E	0.05
ZEHK1	ELLIS 8S	KS	0.05E	0.05
ETHS2	ETHAN	SD	0.05E	0.05
FLTC2	FLATIRON RESERVOIR	CO	0.05	0.05
FRAC2	FRASER 6W	CO	0.05E	0.05

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GRGI4	GEORGE	IA	0.05E	0.05
GIRK1	GIRARD	KS	0.05	0.05
KIGM8	GLASGOW 33SW	MT	0.05	0.05
GIDN1	GRAND ISLAND, WOOD R	NE	0.05E	0.05
HFDS2	HARTFORD	SD	0.05E	0.05
HTYI4	HARTLEY	IA	0.05E	0.05
NESN1	HASKELL AGRICULTURAL	NE	0.05E	0.05
ZEMK1	HAYS 9WSW	KS	0.05E	0.05
MOJH1	HOLDEN 6S	MO	0.05E	0.05
INCW4	INDIAN CREEK	WY	0.05E	0.05
IOAK1	IOLA 1W	KS	0.05	0.05
GAPM8	JUDITH GAP	MT	0.05E	0.05
JDHM8	JUDITH GAP 13E	MT	0.05E	0.05
ICSM7	KANSAS CITY 103RD ST	MO	0.05E	0.05
KRYM7	KEARNEY 2E	MO	0.05E	0.05
MOFSA041	KEYTESVILLE	MO	0.05E	0.05
KBYW4	KIRBY 1W	WY	0.05E	0.05
KMLC2	KREMMLING 1E	CO	0.05E	0.05
LENS2	LENNOX 3NE	SD	0.05E	0.05

LEOW4	LEO 6SW	WY	0.05E	0.05
LNLN1	LINCOLN FIRE STA 13	NE	0.05E	0.05
S69	LINCOLN RANGER STA	MT	0.05E	0.05
LINM8	LINCOLN RANGER STA	MT	0.05E	0.05
LUVMS	LIVERNE, ROCK R	MN	0.05E	0.05
MRFS2	MADISON 2SE	SD	0.05E	0.05
MAHS2	MAHTO	SD	0.05E	0.05
MARN8	MARION 3S	ND	0.05E	0.05
MDWN1	MEADOW GROVE	NE	0.05E	0.05
MEXM7	MEXICO	MO	0.05E	0.05
MHLS2	MITCHELL	SD	0.05E	0.05
ENES2	MITCHELL, ENEMY CR	SD	0.05E	0.05
MOLI4	MOULTON, CHARITON R	IA	0.05E	0.05
BNNS2	NEMO, BOXELDER CR	SD	0.05E	0.05
NEVM7	NEVADA WATER PLANT	MO	0.05	0.05
NVDM7	NEVADA, MARMATON R	MO	0.05E	0.05
NWEN8	NEW ENGLAND	ND	0.05E	0.05
NWTW4	NEWCASTLE 6SE	WY	0.05E	0.05
COAD40	NORTHGLENN 1WSW	CO	0.05E	0.05
OXFN1	OXFORD 6NNW	NE	0.05	0.05
OTOE002	PALMYRA 7SSE	NE	0.05E	0.05
PNDN1	PENDER	NE	0.05E	0.05
PIPM5	PIPESTONE	MN	0.05	0.05
PFSW4	POWELL FIELD STATION	WY	0.05E	0.05
PTRN8	PRETTY ROCK	ND	0.05E	0.05
VAVS2	RAPID CITY 11W	SD	0.05	0.05
UPCS2	RAPID CITY 13W	SD	0.05E	0.05
RWL	RAWLINS	WY	0.05	0.05
RLSW4	RAWLINS 1N	WY	0.05E	0.05
RLNW4	RAWLINS 1NE	WY	0.05E	0.05
REDM8	RED LODGE 6SSW	MT	0.05E	0.05
RYLI4	ROYAL	IA	0.05E	0.05
MOFSA007	RUSH HILL 3S	MO	0.05E	0.05
RUTC2	RUSTIC 9WSW	CO	0.05E	0.05

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SACI4	SAC CITY	IA	0.05	0.05
SBYS2	SELBY	SD	0.05E	0.05
SVRM8	SILVER STAR	MT	0.05E	0.05
SIOS2	SIOUX FALLS	SD	0.05E	0.05
RSRS2	SIOUX FALLS 5SW	SD	0.05E	0.05
WCMS2	SIOUX FALLS 6SE	SD	0.05E	0.05
FUHS2	SIOUX FALLS 7S	SD	0.05E	0.05
SXFS2	SIOUX FALLS NO CLIFF	SD	0.05E	0.05
SIFS2	SIOUX FALLS,SKUNK CR	SD	0.05E	0.05
SNKW4	SNAKE RIVER	WY	0.05	0.05
SSMM8	SOUTH SAWMILL GDDS	MT	0.05	0.05
SMIN1	ST MICHAEL, S LOUP R	NE	0.05E	0.05
SPLN1	ST PAUL #2 MID LOUP	NE	0.05E	0.05
STKK1	STOCKTON 1E	KS	0.05E	0.05
SXXW4	SUSSEX, POWDER R	WY	0.05	0.05
WAVS2	SUX FALLS WESTERN AV	SD	0.05	0.05
TRGK1	TREGO CENTER	KS	0.05E	0.05



UNVM7	UNIONVILLE	MO	0.05E	0.05
VBVS2	VICTORIA DAM	SD	0.05	0.05
VGLS2	VIRGIL	SD	0.05E	0.05
VACM8	VIRGINIA CITY	MT	0.05E	0.05
WAMW4	WAMSUTTER	WY	0.05E	0.05
WPKS2	WHITETAIL PEAK RAW	SD	0.05	0.05
WLTN8	WILLISTON, MISSOURI R	ND	0.05E	0.05
WTON8	WILTON	ND	0.05	0.05
BFCW4	WINCHESTER 2NE	WY	0.05E	0.05
WLFM8	WOLF POINT	MT	0.05E	0.05
KSDS2	ABERDEEN 3SW	SD	0.04E	0.04
ALTS2	ALCESTER	SD	0.04E	0.04
ALDN1	ALDA 1SW, WOOD R	NE	0.04E	0.04
ADRM8	ALDER 19S	MT	0.04E	0.04
ALXS2	ALEXANDRIA	SD	0.04E	0.04
HTOS2	ASHTON 5E	SD	0.04E	0.04
BWPM8	BILLINGS WATER PLANT	MT	0.04E	0.04
BLAM7	BOLIVAR 13N	MO	0.04E	0.04
LLHC2	BOULDER 6NW	CO	0.04E	0.04
BZLM8	BOZEMAN 5W	MT	0.04E	0.04
BRHN1	BRAINARD	NE	0.04E	0.04
BRTS2	BRITTON 9NW	SD	0.04E	0.04
BLDS2	BROADLAND 5NE	SD	0.04E	0.04
BUKC2	BUCKEYE	CO	0.04E	0.04
CMNM8	CAMERON	MT	0.04E	0.04
CNTS2	CANTON (AMRAD)	SD	0.04E	0.04
CANS2	CANTON, BIG SIOUX R	SD	0.04E	0.04
CETS2	CENTERVILLE 4N	SD	0.04E	0.04
CHTI4	CHARITON 5SSE	IA	0.04E	0.04
SCCS2	CHESTER, SKUNK CR	SD	0.04E	0.04
CYTS2	CLAYTON, WOLF CR	SD	0.04E	0.04
CLNM7	CLINTON	MO	0.04	0.04
RATW4	CODY 12WNW	WY	0.04	0.04
CMBI4	COLUMBIA	IA	0.04E	0.04
DVSS2	DAVIS, VERMILLION R	SD	0.04E	0.04
DTXC2	DEER TRAIL, MUDDY CR	CO	0.04	0.04

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DRHN8	DICKINSON RANCH HQ	ND	0.04E	0.04
SODC2	DILLON CO	CO	0.04E	0.04
DOSS2	DOLAND	SD	0.04E	0.04
WYFM4	DUBOIS 10WNW	WY	0.04E	0.04
DBOW4	DUBOIS, WIND R	WY	0.04	0.04
DUBW4	DUBOIS, WIND R	WY	0.04	0.04
COB0141	ESTES PARK 11SE	CO	0.04	0.04
FLKK1	FARLINGTON	KS	0.04E	0.04
FRMN8	FORMAN 5SSE	ND	0.04E	0.04
FBKM8	FORT BELKNAP CANAL	MT	0.04E	0.04
FTAN8	FORTUNA 1W	ND	0.04E	0.04
FRUC2	FRASER 10SE	CO	0.04E	0.04
MAPS2	FREDERICK, MAPLE R	SD	0.04E	0.04
FLTN8	FULLERTON 1ESE	ND	0.04E	0.04
GTEW4	GILLETTE 8E	WY	0.04E	0.04

GLSM7	GLASGOW	MO	0.04E	0.04
GLZM7	GLASGOW, MISSOURI R	MO	0.04	0.04
MGD	GOODLAND 12N	KS	0.04E	0.04
GRCW4	GRANITE CREEK	WY	0.04E	0.04
GRCM7	GREEN CITY 5N	MO	0.04	0.04
HARM8	HARLEM	MT	0.04	0.04
HWSM8	HARLEM 2W	MT	0.04E	0.04
HARI4	HARTLEY	IA	0.04E	0.04
HVNN8	HAVANA	ND	0.04	0.04
HLI4	HOLLY SPRINGS 1NW	IA	0.04E	0.04
HSTI4	HOLSTEIN	IA	0.04E	0.04
HRSC2	HORSETOOTH RESERVOIR	CO	0.04E	0.04
HOWN1	HOWELLS	NE	0.04E	0.04
HUMM7	HUMANSVILLE 2SE	MO	0.04E	0.04
ISWI1	ISLAND PARK	ID	0.04E	0.04
ISPI1	ISLAND PARK 9ENE	ID	0.04E	0.04
JSDS2	JOHNSON SIDING	SD	0.04E	0.04
JRDM8	JORDAN 25N	MT	0.04E	0.04
JRNM8	JORDAN 43ENE	MT	0.04E	0.04
JUDN8	JUDSON 9SSE, HEART R	ND	0.04E	0.04
KFFC2	KAUFFMAN 4SSE	CO	0.04E	0.04
KRNM7	KEARNEY 3E	MO	0.04	0.04
LKWM5	LAKE WILSON	MN	0.04E	0.04
LKWC2	LAKEWOOD 4NW	CO	0.04E	0.04
LARM8	LAURIN 2NE	MT	0.04E	0.04
LBK1	LEBANON	KS	0.04	0.04
LNAN1	LINCOLN FIRE STA 1	NE	0.04E	0.04
LNJN1	LINCOLN FIRE STA 12	NE	0.04E	0.04
LNEN1	LINCOLN FIRE STA 7	NE	0.04E	0.04
LNGN1	LINCOLN FIRE STA 9	NE	0.04E	0.04
LICN1	LINCOLN, LTL SALT CR	NE	0.04	0.04
LONK1	LOGAN	KS	0.04	0.04
LOVW4	LOVELL	WY	0.04E	0.04
LWRM7	LOWRY CITY 5E	MO	0.04E	0.04
LDLK1	LUDELL, BEAVER CR	KS	0.04E	0.04
MADM8	MADISON DAM BLO	MT	0.04E	0.04
MINN1	MINDEN	NE	0.04	0.04
MQM	MONIDA	MT	0.04E	0.04

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ID	DESCRIPTION	STATE	06/17	PERIOD SUM
MOOW4	MOOSE	WY	0.04E	0.04
MTAI4	MOUNT AYR	IA	0.04	0.04
NAPN1	NAPONEE, TURKEY CR	NE	0.04E	0.04
NEBN1	NEBRASKA CITY	NE	0.04E	0.04
NCYN1	NEBRASKA CITY 2NW	NE	0.04E	0.04
NWSN8	NEW SALEM 5NW	ND	0.04E	0.04
NWLW4	NEWCASTLE 15SW	WY	0.04E	0.04
OKSN8	OAKES 6SE	ND	0.04E	0.04
OCDN1	ORCHARD 9NNE	NE	0.04E	0.04
RAPS2	PACTOLA DAM	SD	0.04	0.04
PACS2	PACTOLA RESERVOIR	SD	0.04E	0.04
PWDN8	PAINTED WOODS CR	ND	0.04E	0.04
P05	PHILIP 3E	SD	0.04E	0.04

PHP	PHILLIP	SD	0.04	0.04
PSMM7	PITTSBURG 4WSW	MO	0.04E	0.04
PLTS2	PLATTE	SD	0.04E	0.04
RAVS2	RAPID CITY 11SW	SD	0.04E	0.04
JHNS2	RAPID CITY 11W	SD	0.04	0.04
IRIS2	RAPID CITY 6W	SD	0.04	0.04
HCGS2	RAPID CITY 8W	SD	0.04E	0.04
EKCS2	RAPID CITY, ELK CR	SD	0.04E	0.04
BIGS2	RAPID CITY, RAPID CR	SD	0.04	0.04
RNOW4	RENO JUNCTION	WY	0.04E	0.04
RCDM7	RICHARDS	MO	0.04E	0.04
ROCS2	ROCHFORD 2WNW	SD	0.04E	0.04
SHLN1	SHELBY 3NE	NE	0.04E	0.04
GREE007	SPALDING	NE	0.04E	0.04
SPDN1	SPALDING 5S, CEDAR R	NE	0.04E	0.04
WHEE006	SPALDING 6N	NE	0.04E	0.04
0362N8	STEELE 7SW	ND	0.04E	0.04
SUMC2	SUMMIT RANCH	CO	0.04E	0.04
SURN1	SURPRISE	NE	0.04E	0.04
SFMS2	SUX FALLS, MAPLE ST	SD	0.04	0.04
TWKN8	TEWAUKON RAWS	ND	0.04E	0.04
BMTW4	THERMOPOLIS 9NE	WY	0.04E	0.04
TION8	TIOGA 1E	ND	0.04E	0.04
KSSN7	TOPEKA 5ESE	KS	0.04E	0.04
UPLN1	UPLAND	NE	0.04E	0.04
URHM7	URICH 1S, SO GRAND R	MO	0.04E	0.04
WSBM8	WESTBY	MT	0.04E	0.04
WTWS2	WHITEWOOD 1S	SD	0.04E	0.04
WLDN8	WILDROSE 3NW	ND	0.04E	0.04
WLDM8	WILDROSE 3NW	MT	0.04E	0.04
WEFN8	WILLISTON EXP FARM	ND	0.04E	0.04
WTRI4	WINTERSET 2NNW	IA	0.04E	0.04
WDRK1	WOODRUFF 3WSW	KS	0.04E	0.04
WRNM5	WORTHINGTON 2NNE	MN	0.04	0.04
AKAS2	AKASKA 21SE	SD	0.03E	0.04
ALCS2	ALCESTER	SD	0.03E	0.04
ACDK1	ARCADIA	KS	0.03E	0.04
ATHS2	ATHOL, SF SNAKE CR	SD	0.03E	0.04
ATLM7	ATLANTA	MO	0.03E	0.04
ATAM7	ATLANTA RAWS	MO	0.03E	0.04

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AVNS2	AVON	SD	0.03E	0.04
0134N8	BALDWIN 1W	ND	0.03E	0.04
BLKC2	BEAR LAKE	CO	0.03E	0.04
BLFN8	BELFIELD 1SW	ND	0.03E	0.04
BILM8	BILLINGS, YELLOWSTONE	MT	0.03E	0.04
BMKN8	BISMARCK 5NNW	ND	0.03	0.04
BIWN8	BISMARCK, MISSOURI R	ND	0.03E	0.04
BHKC2	BLACK HAWK 6SE	CO	0.03E	0.04
BPKS2	BLIND PARK #2	SD	0.03E	0.04
BORC2	BOULDER 8NE	CO	0.03E	0.04
SBDW4	BOYSEN DAM	WY	0.03E	0.04

BOYW4	BOYSEN RESERVOIR	WY	0.03E	0.04
BCOC2	BROOMFIELD	CO	0.03E	0.04
CDYW4	BUFFALO BILL DAM	WY	0.03E	0.04
BUFC2	BUFFALO PARK	CO	0.03E	0.04
DINW4	BURRIS, DINWOODY CR	WY	0.03E	0.04
BYRC2	BYERS 5ENE	CO	0.03E	0.04
CYNS2	CANYON LAKE ABOVE	SD	0.03E	0.04
CPRS2	CARPENTER 4NNE	SD	0.03E	0.04
CCSW4	CASTLE CREEK SNOTEL	WY	0.03E	0.04
CENS2	CENTERVILLE 6SE	SD	0.03E	0.04
CERN1	CERESCO 6SE, ROCK CR	NE	0.03E	0.04
CNUK1	CHANUTE 3N GDDS	KS	0.03	0.04
KSCR2	CHEROKEE	KS	0.03E	0.04
CHKM8	CHINOOK 35SE	MT	0.03E	0.04
CLKN1	CLARKSON	NE	0.03E	0.04
CNTM8	CONTENT 3SSE	MT	0.03E	0.04
CORW4	CORA	WY	0.03E	0.04
CORM8	CORWIN SPRINGS	MT	0.03E	0.04
COUW4	COULTER CREEK	WY	0.03E	0.04
CRSN1	CRESTON	NE	0.03E	0.04
CRTI4	CRESTON 2SW	IA	0.03E	0.04
CSBN8	CROSBY 30W RAWS	ND	0.03E	0.04
DWIN1	DE WITT	NE	0.03E	0.04
DTRC2	DEER TRAIL 15ESE	CO	0.03E	0.04
DFDS2	DEERFIELD 3SE	SD	0.03E	0.04
DRFS2	DEERFIELD RESERVOIR	SD	0.03E	0.04
DELS2	DELL RAPIDS	SD	0.03E	0.04
DERS2	DELL RAPIDS 2SW	SD	0.03E	0.04
DNSK1	DENSMORE 2N	KS	0.03E	0.04
OTOE008	EAGLE 4S	NE	0.03E	0.04
1950N8	ELGIN	ND	0.03E	0.04
EKM8	ELKHORN RAWS	MT	0.03	0.04
ELMM8	ENNIS LAKE	MT	0.03E	0.04
FLAN8	FLASHER	ND	0.03	0.04
FLMC2	FLEMING	CO	0.03E	0.04
COSU4	FRISCO 1N	CO	0.03E	0.04
FTRN8	FT RANSOM 4NNE	ND	0.03E	0.04
0189N8	FULLERTON 1NE	ND	0.03E	0.04
GTNM8	GALLATIN GATEWAY	MT	0.03E	0.04
GARN8	GARRISON DAM	ND	0.03E	0.04
GSHW4	GAS HILLS 4E	WY	0.03E	0.04
KIMW4	GILLETTE	WY	0.03E	0.04

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GEEW4	GILLETTE 11E	WY	0.03E 0.04
GLEM8	GLEN 2E	MT	0.03E 0.04
GRWN1	GRAND ISLAND	NE	0.03E 0.04
GRIN1	GRAND ISLAND 5SE	NE	0.03E 0.04
GRI	GRAND ISLAND AIRPORT	NE	0.03 0.04
GRNN1	GREENWOOD, SALT CR	NE	0.03E 0.04
GREN8	GRENORA	ND	0.03E 0.04
HRLM8	HARLEM 4SSE, MILK R	MT	0.03E 0.04
HSCS2	HERMOSA 7N	SD	0.03E 0.04

HINM8	HINSDALE 4SW	MT	0.03E	0.04
HCKS2	HITCHCOCK	SD	0.03E	0.04
HOPM7	HOPKINS	MO	0.03	0.04
HRLC2	HOURLASS RES SNOTEL	CO	0.03E	0.04
HYSM8	HYSHAM	MT	0.03E	0.04
ILIM8	ILIAD	MT	0.03E	0.04
INTS2	INTERIOR 3NE	SD	0.03E	0.04
IRRS2	INTERIOR, WHITE R	SD	0.03	0.04
JDN	JORDAN	MT	0.03	0.04
JORM8	JORDAN	MT	0.03E	0.04
JDWM8	JORDAN 23ENE	MT	0.03E	0.04
KRW4	KIRWIN	WY	0.03E	0.04
KRAN1	KRAMER 2E	NE	0.03E	0.04
LMRN8	LA MOURE	ND	0.03E	0.04
LAMM7	LAMAR	MO	0.03E	0.04
LRRM7	LAMAR	MO	0.03E	0.04
LRKN8	LARK 10N, HEART R	ND	0.03E	0.04
LNXS2	LENNOX	SD	0.03E	0.04
LMCN1	LINCOLN 4WSW	NE	0.03	0.04
LIES2	LITTLE EAGLE, GRAND R	SD	0.03E	0.04
LSXI4	LITTLE SIOUX 2NW	IA	0.03	0.04
LSNM8	LITTLE SNOWY RAWS	MT	0.03E	0.04
COLR250	LIVERMORE 11WSW	CO	0.03E	0.04
LIVC2	LIVERMORE, POUDRE R	CO	0.03E	0.04
LIVM8	LIVINGSTON 5S	MT	0.03E	0.04
COB084	LONGMONT 3NW	CO	0.03E	0.04
LBAC2	LOVELAND BASIN	CO	0.03E	0.04
THUC2	LYONS 7S	CO	0.03E	0.04
MNGN8	MANNING, KNIFE R	ND	0.03	0.04
MRON8	MARION	ND	0.03E	0.04
MCGN8	MCGREGOR	ND	0.03E	0.04
MLRM8	MELROSE 7S	MT	0.03E	0.04
MENM8	MENARD 3NE	MT	0.03E	0.04
MIDS2	MIDLAND, BAD R	SD	0.03	0.04
ILLS2	MILLER 15S	SD	0.03E	0.04
MLNS2	MILLTOWN, JAMES R	SD	0.03E	0.04
MITS2	MITCHELL 2N	SD	0.03E	0.04
BOUM8	MONTANA DEV CENTER	MT	0.03E	0.04
MOSC2	MORRISON	CO	0.03E	0.04
MRRC2	MORRISON, BEAR CREEK	CO	0.03E	0.04
MNDS2	MOUND CITY	SD	0.03E	0.04
MOUM7	MOUNDVILLE	MO	0.03E	0.04
MDGW4	MUDDY GAP	WY	0.03E	0.04
MULN1	MULLEN 21NW	NE	0.03E	0.04

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MYSM8	MYSTIC LAKE	MT	0.03E	0.04
NWCW4	NEWCASTLE	WY	0.03E	0.04
NBRN1	NIOBRARA 6WSW	NE	0.03E	0.04
NRCK1	NORCATUR 3WSW	KS	0.03E	0.04
OVIC2	OVID	CO	0.03E	0.04
PVLW4	PAVILLION	WY	0.03E	0.04
BRW4	PINEDALE 14SE	WY	0.03E	0.04

POLS2	POLLOCK	SD	0.03E	0.04
PRMI4	PROMISE CITY 6NW	IA	0.03E	0.04
RACS2	RAPID CITY 4NW	SD	0.03	0.04
RCWS2	RAPID CITY 4SW	SD	0.03E	0.04
ECHS2	RAPID CITY 5W	SD	0.03	0.04
COLR228	RED FEATHER LAKES	CO	0.03E	0.04
RESS2	REE HEIGHTS, WOLF CR	SD	0.03E	0.04
RXE	REXBURG AIRPORT	ID	0.03E	0.04
RIVN8	RIVERDALE	ND	0.03E	0.04
BRNW4	RIVERTON 21NW	WY	0.03E	0.04
RWCI4	ROCKWELL CITY #2	IA	0.03E	0.04
ROP8	ROUNDUP	MT	0.03E	0.04
RUP8	ROUNDUP, MUSSELSHELL	MT	0.03E	0.04
SAOM8	SACO 1NNW	MT	0.03E	0.04
SACM8	SACO 7NE, MILK R	MT	0.03	0.04
SELS2	SELBY	SD	0.03E	0.04
SGOM8	SHENANGO RAWS	MT	0.03	0.04
RSIS2	SILVER CITY 1W	SD	0.03	0.04
EROS2	SIOUX FALLS 14NE	SD	0.03E	0.04
SKCM8	SOUTH KIRBY RAWS	MT	0.03E	0.04
SPRN1	SPRAGUE	NE	0.03E	0.04
SPGN1	SPRAGUE 3W	NE	0.03E	0.04
SLBN1	ST LIBORY	NE	0.03E	0.04
STPS2	STEPHAN 2NW	SD	0.03E	0.04
TABM8	TABLE MOUNTAIN	MT	0.03E	0.04
TLRN8	TAYLOR 7NNW	ND	0.03E	0.04
THNC2	THORNTON 5NNE	CO	0.03E	0.04
TFKM8	THREE FORKS 3NW GDDS	MT	0.03	0.04
TURN8	TURTLE LAKE 4N	ND	0.03E	0.04
UION1	UNION, WEEPING WATER	NE	0.03E	0.04
UPDN1	UPLAND 4NE	NE	0.03E	0.04
VALN8	VALLEY CITY 3NNW	ND	0.03E	0.04
VEDN1	VERDIGRE, VERDIGRE CR	NE	0.03E	0.04
COLR672	VIRGINIA DALE 7SSW	CO	0.03E	0.04
WKAS2	WAKONDA, VERMILLION	SD	0.03E	0.04
WASN8	WASHBURN	ND	0.03E	0.04
WSBN8	WASHBURN, MISSOURI R	ND	0.03E	0.04
WSHN8	WASHBURN, TURTLE CR	ND	0.03E	0.04
WESW4	WESTON 1E	WY	0.03E	0.04
WESS2	WESTPORT, ELM R	SD	0.03	0.04
WSRM8	WHITE SULPHUR SPRNGS	MT	0.03E	0.04
WHIS2	WHITEHORSE, MOREAU R	SD	0.03E	0.04
0126N8	WILTON 7NE	ND	0.03E	0.04
WODN1	WOOD RIVER 1NNW	NE	0.03E	0.04
WORM5	WORTHINGTON	MN	0.03E	0.04
SUES2	ABERDEEN 2S	SD	0.02E	0.02

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AWSW4	ADAMS RAWS	WY	0.02 0.02
AGAC2	AGATE	CO	0.02E 0.02
COEL29	AGATE 4NW	CO	0.02E 0.02
SALS2	ALCESTER	SD	0.02E 0.02
ALRI4	ALLERTON	IA	0.02 0.02

HARL008	ALMA	NE	0.02E	0.02
ALPS2	ALPENA, SAND CR	SD	0.02E	0.02
AMIN8	AMIDON	ND	0.02E	0.02
ANDS2	ANDOVER	SD	0.02E	0.02
ARLS2	ARLINGTON 1W	SD	0.02E	0.02
ARHN1	ARTHUR	NE	0.02E	0.02
AHLN1	ASHLAND	NE	0.02E	0.02
ASDN1	ASHLAND #1	NE	0.02E	0.02
ASHI1	ASHTON	ID	0.02E	0.02
KGLM8	BABB	MT	0.02E	0.02
BLZC2	BALZAC	CO	0.02E	0.02
BCDC2	BEAR CREEK DAM	CO	0.02E	0.02
BSFM8	BILLINGS RAWS	MT	0.02E	0.02
BISN8	BISMARCK 7N	ND	0.02E	0.02
HCKN8	BISMARCK, HAY CREEK	ND	0.02E	0.02
BLIM7	BLAIRSTOWN	MO	0.02	0.02
BLRM7	BLAIRSTOWN, BIG CR	MO	0.02	0.02
BNRS2	BOXELDER CREEK	SD	0.02	0.02
BGHC2	BRIGHTON 5WNW	CO	0.02E	0.02
LCFM8	BROCKWAY 18S	MT	0.02	0.02
BULW4	BULL LAKE OUTFLOW	WY	0.02E	0.02
BYI	BURLEY AIRPORT	ID	0.02E	0.02
BRLC2	BURLINGTON	CO	0.02E	0.02
BTM	BUTTE FAA AIRPORT	MT	0.02	0.02
CALM7	CALIFORNIA	MO	0.02E	0.02
CPPM7	CAPLINGER MILLS	MO	0.02E	0.02
CPMM7	CAPLINGER MILLS 1N	MO	0.02E	0.02
CPTS2	CAPUTA 1SW	SD	0.02E	0.02
CARM8	CARDWELL	MT	0.02E	0.02
CTCS2	CASTLE CREEK ABV RES	SD	0.02	0.02
CNU	CHANUTE	KS	0.02	0.02
CHES2	CHESTER 2N	SD	0.02E	0.02
CLAS2	CLARK	SD	0.02	0.02
CLFM7	CLIFTON CITY	MO	0.02E	0.02
CLXC2	CLIMAX	CO	0.02	0.02
CLMC2	CLIMAX 4W	CO	0.02E	0.02
CYDM8	CLYDE PARK 1W	MT	0.02E	0.02
CHNM8	COHAGEN	MT	0.02E	0.02
CKCM8	COOKE CITY 2W	MT	0.02E	0.02
COYI4	CORYDON 2NE	IA	0.02E	0.02
CROS2	CROCKER 6SW	SD	0.02E	0.02
LSKM5	CURRIE	MN	0.02E	0.02
DVDN1	DAVID CITY	NE	0.02	0.02
HSGS2	DEADWOOD	SD	0.02E	0.02
WBCS2	DEADWOOD 2NE	SD	0.02E	0.02
DELM8	DEL BONITA	MT	0.02E	0.02
DIKI4	DICKENS	IA	0.02E	0.02
DNWW4	DINWOODY	WY	0.02E	0.02

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DDGN1	DODGE	NE	0.02E 0.02
DUNN1	DUNBAR 4N	NE	0.02E 0.02
DNCN8	DUNN CENTER 1E	ND	0.02E 0.02

DUNM7	DUNNEGAN	MO	0.02E	0.02
EGLW4	EAGLE	WY	0.02E	0.02
WWSM8	ELK PEAK SNOTEL	MT	0.02E	0.02
SEKS2	ELKTON	SD	0.02E	0.02
ELNN8	ELLENDAL 9NW	ND	0.02E	0.02
FLAS2	FLANDREAU	SD	0.02E	0.02
FTBS2	FORESTBURG 3NE	SD	0.02E	0.02
FWWM8	FORKS 4NNE	MT	0.02E	0.02
FPKM8	FORT PECK DAM	MT	0.02E	0.02
FMTCC	FREMONT PASS	CO	0.02E	0.02
FRSC2	FRISCO	CO	0.02E	0.02
FNCK1	FRONTENAC	KS	0.02E	0.02
FOD	FT DODGE	IA	0.02E	0.02
FTSK1	FT SCOTT	KS	0.02E	0.02
GSNN8	GARRISON	ND	0.02E	0.02
N60	GARRISON 1W	ND	0.02	0.02
GPKM8	GATE PARK RAWS	MT	0.02E	0.02
GLLW4	GILLETTE	WY	0.02E	0.02
GINM8	GINGER RAWS	MT	0.02	0.02
WYPT9	GLENDO 6ENE	WY	0.02E	0.02
GDOW4	GLENDO 6NE	WY	0.02E	0.02
COJF267	GOLDEN 9WNW	CO	0.02E	0.02
GLKC2	GRAND LAKE 1NW	CO	0.02E	0.02
0371N8	GRAND RAPIDS 3SW	ND	0.02E	0.02
GFDM7	GREENFIELD 4SE	MO	0.02E	0.02
GFZM7	GREENFIELD GDOS	MO	0.02	0.02
GZPC2	GRIZZLY PEAK	CO	0.02E	0.02
HALN1	HALLAM 2N	NE	0.02E	0.02
HRBM8	HARB	MT	0.02E	0.02
HRDM5	HARDWICK	MN	0.02E	0.02
HWKM5	HARDWICK 2NW	MN	0.02E	0.02
HRMM8	HARLEM 8NW DIVERSION	MT	0.02E	0.02
HZZS2	HAYES 7SW	SD	0.02E	0.02
HWPK1	HAYS	KS	0.02E	0.02
ZEGK1	HAYS	KS	0.02E	0.02
HAYK1	HAYS	KS	0.02E	0.02
HYSK1	HAYS, BIG CREEK	KS	0.02	0.02
OSAS2	HERMOSA, BATTLE CR	SD	0.02	0.02
HEDS2	HERRIED	SD	0.02E	0.02
HGHM7	HIGH POINT	MO	0.02E	0.02
FRAN002	HILDRETH 5SSE	NE	0.02E	0.02
INSM8	HINSDALE 2E	MT	0.02E	0.02
HORM8	HORSE THIEF RAWS	MT	0.02	0.02
HOUC2	HOURLASS RESERVOIR	CO	0.02E	0.02
JACM8	JACKSON	MT	0.02E	0.02
JTWN8	JAMESTOWN HOSPITAL	ND	0.02	0.02
JMSN8	JAMESTOWN, JAMES R	ND	0.02E	0.02
JUBC2	JULESBURG CHANNEL #1	CO	0.02E	0.02
KDRS2	KIDDER	SD	0.02E	0.02
KLLN8	KILLDEER	ND	0.02	0.02

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MTNW4	KINNEAR 9WNW	WY	0.02E 0.02



LPTC2	LA PORTE	CO	0.02E	0.02
LBNM5	LAKE BENTON	MN	0.02E	0.02
COJF179	LAKEWOOD 2S	CO	0.02E	0.02
LARM7	LAMAR 12NE	MO	0.02E	0.02
LAVM8	LAVINA	MT	0.02E	0.02
LEIN8	LEITH 13SW	ND	0.02E	0.02
LWSM8	LEWISTOWN 10S	MT	0.02E	0.02
LWMM8	LEWISTOWN 11ESE	MT	0.02E	0.02
LMAM8	LIMA	MT	0.02E	0.02
LRRM8	LIMA RESERVOIR	MT	0.02E	0.02
LHBN1	LINCOLN, HAINES BR	NE	0.02E	0.02
SLDM8	LIVINGSTON 7NE	MT	0.02E	0.02
LVM	LIVINGSTON AIRPORT	MT	0.02	0.02
LSHI4	LOESS HILLS RAWS	IA	0.02E	0.02
LOGI4	LOGAN	IA	0.02	0.02
LGNI4	LOGAN #2, BOYER R	IA	0.02E	0.02
QADW4	MAMMOTH 25WSW	WY	0.02E	0.02
MDNN8	MANDAN 3W, HEART R	ND	0.02E	0.02
MESN8	MANDAN EXP STATION	ND	0.02E	0.02
MHLN8	MARSHALL, KNIFE R	ND	0.02E	0.02
MKLN1	MASKELL, MISSOURI R	NE	0.02E	0.02
MAXN8	MAX	ND	0.02E	0.02
Ø853N8	MAX 8N	ND	0.02E	0.02
MYCI4	MAY CITY	IA	0.02E	0.02
MAYI4	MAY CITY	IA	0.02E	0.02
MIFI4	MILFORD, LTL SIOUX R	IA	0.02E	0.02
MIES2	MILLER 10S	SD	0.02E	0.02
MONI4	MONDAMIN	IA	0.02E	0.02
MATN8	MOTT 1N	ND	0.02E	0.02
MTNM8	MOULTON RESERVOIR	MT	0.02E	0.02
CAMW4	MUDDY GAP 7SSW	WY	0.02E	0.02
WHLW4	N PLATTE BLO WHALEN	WY	0.02E	0.02
NASM8	NASHUA #2	MT	0.02E	0.02
NSHM8	NASHUA, MILK R	MT	0.02E	0.02
FPMM8	NASHUA, MISSOURI R	MT	0.02E	0.02
COBO34	NEDERLAND 1WNW	CO	0.02	0.02
NDLC2	NEDERLAND 2NNE	CO	0.02E	0.02
NHRM8	NEIHART 7NW	MT	0.02E	0.02
NHTM8	NEIHART 8NNW	MT	0.02E	0.02
NLIN1	NELIGH, ELKHORN R	NE	0.02E	0.02
DWCM7	NEVADA, DRY WOOD CR	MO	0.02E	0.02
NRYC2	NEW RAYMER	CO	0.02E	0.02
NEWN1	NEWCASTLE	NE	0.02E	0.02
NCLW4	NEWCASTLE	WY	0.02E	0.02
BCNW4	NEWCASTLE 5E	WY	0.02E	0.02
NOFN1	NORFOLK 2N	NE	0.02E	0.02
OKDN1	OAKDALE	NE	0.02	0.02
ODEI4	ODEBOLT	IA	0.02E	0.02
OMA	OMAHA EPPLEY FIELD	NE	0.02	0.02
OSGW4	OSAGE	WY	0.02E	0.02
OSCN1	OSCEOLA	NE	0.02	0.02
PADC2	PADRONI	CO	0.02E	0.02

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ØSTATION			PERIOD
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PARS2	PARKSTON 8ENE	SD	0.02E	0.02
PHLS2	PHILLIP 1S	SD	0.02E	0.02
PSGI4	PISGAH, SOLDIER R	IA	0.02E	0.02
PTSK1	PITTSBURG	KS	0.02	0.02
KSCR1	PITTSBURG 1WSW	KS	0.02E	0.02
PITM7	PITTSBURG 4W	MO	0.02E	0.02
PKKM7	POLK 2NE	MO	0.02E	0.02
PLKM7	POLK 2NE, LINDLEY CR	MO	0.02E	0.02
PRWC2	PREWITT RESERVOIR	CO	0.02E	0.02
RCYS2	RAPID CITY, RAPID CR	SD	0.02	0.02
NOVC2	RAYMER 2N	CO	0.02E	0.02
RAFM8	RAYNESFORD 2NNW	MT	0.02E	0.02
RETS2	REE HEIGHTS 15S	SD	0.02E	0.02
RGNN8	REGAN 6NE	ND	0.02E	0.02
REGN8	REGENT, CANNONBALL R	ND	0.02E	0.02
RIL	RIFLE	CO	0.02	0.02
RLVC2	ROLLINSVILLE 1NW	CO	0.02E	0.02
RLAM8	ROUNDUP 15SW	MT	0.02E	0.02
ALRM8	RUBY DAM	MT	0.02E	0.02
RHVI4	RUTHVIN	IA	0.02E	0.02
SPPM8	SAPPINGTON HWY BR	MT	0.02E	0.02
SNCS2	SENECA 15SSE	SD	0.02E	0.02
SSHW4	SHOSHONI	WY	0.02E	0.02
SILM8	SILVER RUN	MT	0.02E	0.02
SMCK1	SMITH CENTER	KS	0.02	0.02
SPW	SPENCER	IA	0.02	0.02
3SE	SPENCER 1N	IA	0.02E	0.02
SPWI4	SPENCER, LTL SIOUX R	IA	0.02E	0.02
LSSI4	SPENCER, LTL SIOUX R	IA	0.02	0.02
SPOI4	SPENCER, OCHEYEDAN R	IA	0.02	0.02
STTM7	ST THOMAS, OSAGE R	MO	0.02	0.02
HKMN1	STAGECOACH LAKE	NE	0.02E	0.02
COLR404	STOVE PRAIRIE 3SSE	CO	0.02E	0.02
SYCN1	SYRACUSE	NE	0.02E	0.02
THUW4	THUMB DIVIDE	WY	0.02E	0.02
TCTM8	TIMBERCREST RAWS	MT	0.02	0.02
TSEK1	TOPEKA SW 37TH ST	KS	0.02E	0.02
TOPK1	TOPEKA, SOLDIER CR	KS	0.02E	0.02
TSTM8	TOSTON 5NW AGRIMET	MT	0.02	0.02
TOSM8	TOSTON, MISSOURI R	MT	0.02E	0.02
TOWM8	TOWNSEND	MT	0.02E	0.02
TRUW4	TROUT CREEK	WY	0.02E	0.02
TURS2	TURTON	SD	0.02	0.02
TYLM5	TYLER	MN	0.02E	0.02
VNRM8	VAN NORMAN 4NE	MT	0.02E	0.02
VDIM7	VANDIKE FARMS 4NNE	MO	0.02	0.02
VBLS2	VEBLEN 3NW	SD	0.02E	0.02
AXTM8	VIRGINIA CITY 15SE	MT	0.02E	0.02
WALK1	WALNUT 2NNE	KS	0.02E	0.02
WARS2	WARNER 12W	SD	0.02E	0.02
WTRC2	WATERDALE	CO	0.02E	0.02
WEEN1	WEeping WATER 3N	NE	0.02E	0.02
WSGS2	WESSINGTON 8NE	SD	0.02E	0.02

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WSPS2	WESSINGTON SPRINGS	SD	0.02E	0.02
WSYM8	WEST YELLOWSTONE	MT	0.02E	0.02
WEYM8	WEST YELLOWSTONE 9NW	MT	0.02E	0.02
SMHM8	WHITE SULPHUR 25NNW	MT	0.02E	0.02
SZL	WHITEMAN AFB	MO	0.02	0.02
WTRM8	WHITEWATER	MT	0.02E	0.02
ISN	WILLISTON INTL APT	ND	0.02	0.02
SVWM8	WILLSALL 4NNE	MT	0.02E	0.02
WBN14	WOODBINE	IA	0.02E	0.02
OTG	WORTHINGTON AIRPORT	MN	0.02	0.02
EYPW4	YELLOWSTONE NP EAST	WY	0.02	0.02
YLAW4	YELLOWSTONE(MAMMOTH)	WY	0.02E	0.02
ADRM5	ADRIAN	MN	0.01E	0.01
ALBI4	ALBIA 3NNE	IA	0.01E	0.01
ADIM7	ALDRICH 3WSW	MO	0.01E	0.01
ATAW4	ALTA	WY	0.01E	0.01
AMDN8	AMIDON 12NW	ND	0.01E	0.01
LMRM8	ANTELOPE RAWS	MT	0.01	0.01
ANTI4	ANTHON 3E	IA	0.01E	0.01
APKI4	ARNOLDS PARK	IA	0.01E	0.01
ASBN1	ASHBY 20SSW	NE	0.01E	0.01
MOBN7	ASHLAND 4E	MO	0.01E	0.01
ATWC2	ATWOOD, SO PLATTE R	CO	0.01	0.01
NFSM8	AUGUSTA 25NW	MT	0.01E	0.01
AUSM8	AUSTIN 1W	MT	0.01E	0.01
AVCM5	AVOCA	MN	0.01E	0.01
BNEM8	BABB 6NE	MT	0.01E	0.01
BGRS2	BADGER 2S	SD	0.01E	0.01
BADS2	BADGER 4NE	SD	0.01E	0.01
BAYM8	BAYLOR	MT	0.01E	0.01
BLGN1	BELGRADE	NE	0.01E	0.01
BNNN1	BENNET	NE	0.01E	0.01
BNNC2	BENNETT 2SE	CO	0.01E	0.01
BLIN8	BERLIN	ND	0.01E	0.01
CYKW4	BIG HORN, CONEY CR	WY	0.01E	0.01
BIS	BISMARCK AIRPORT	ND	0.01	0.01
BLKI4	BLOCKTON 1W	IA	0.01E	0.01
BLUM8	BLUFF CREEK RAWS	MT	0.01	0.01
BOLM7	BOLIVAR 3NW	MO	0.01E	0.01
BOJC2	BOULDER	CO	0.01E	0.01
COB081	BOULDER 3N	CO	0.01E	0.01
COB082	BOULDER 5E	CO	0.01E	0.01
BOWN8	BOWMAN	ND	0.01E	0.01
BOMN8	BOWMAN 3W	ND	0.01E	0.01
BYRI4	BOYER 4SE	IA	0.01E	0.01
BRGC2	BRECKENRIDGE	CO	0.01E	0.01
BREC2	BRECKENRIDGE 3N	CO	0.01E	0.01
UBLC2	BRECKENRIDGE 7SSW	CO	0.01E	0.01
BRDM8	BREDETTE	MT	0.01E	0.01
BDLC2	BRIGGS DALE	CO	0.01E	0.01
BRNS2	BRITTON	SD	0.01E	0.01
BRIS2	BRITTON	SD	0.01E	0.01
BKYM8	BROCKWAY 3WSW	MT	0.01E	0.01

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ID	DESCRIPTION	STATE	06/17	SUM
BKX	BROOKINGS	SD	0.01E	0.01
BRKS2	BROOKINGS, BIG SIOUX	SD	0.01	0.01
0787N8	BUCHANAN 2S	ND	0.01E	0.01
BKMC2	BUCKHORN MOUNTAIN 1E	CO	0.01E	0.01
BBRW4	BUFFALO BILL ABV	WY	0.01E	0.01
BLBW4	BUFFALO BILL DAM	WY	0.01E	0.01
BTEN8	BUTTE 5SE	ND	0.01E	0.01
CAIN1	CAIRO 5S	NE	0.01E	0.01
CRON1	CAIRO 5S	NE	0.01E	0.01
CAHM7	CALHOUN	MO	0.01E	0.01
27D	CANBY	MN	0.01E	0.01
CHFC2	CEDAR COVE 2E	CO	0.01E	0.01
0581N8	CENTER 1E	ND	0.01E	0.01
CETN8	CENTER 4SE	ND	0.01E	0.01
CHPN1	CHAPPELL	NE	0.01E	0.01
CHRI4	CHARITON 1E	IA	0.01E	0.01
CVDM8	CHINOOK 21SE	MT	0.01E	0.01
CIRM8	CIRCLE	MT	0.01E	0.01
ICLI4	CLARINDA, NODAWAY R	IA	0.01	0.01
COLF003	CLARKSON 8SSW	NE	0.01E	0.01
CUDM8	CLEVELAND 5ENE	MT	0.01E	0.01
CDAW4	CODY 25NW	WY	0.01E	0.01
COS	COLORADO SPRINGS	CO	0.01	0.01
CNEC2	COLORADO SPRINGS 4NE	CO	0.01E	0.01
CMMC2	COMMERCE CITY 2NE	CO	0.01E	0.01
CNDS2	CONDE	SD	0.01E	0.01
BCCQ8	CONSUL 1SSW	SK	0.01E	0.01
CWDS2	COTTONWOOD 2E	SD	0.01E	0.01
CTTS2	COTTONWOOD, SF BAD R	SD	0.01	0.01
COUN8	COURTENAY 1NW	ND	0.01E	0.01
CSTI4	CRESCENT	IA	0.01E	0.01
CULM8	CULBERTSON	MT	0.01E	0.01
DDZM7	DADEVILLE GDDS	MO	0.01E	0.01
DDVM7	DADEVILLE, SAC R	MO	0.01E	0.01
DEAS2	DEADWOOD	SD	0.01E	0.01
DPCM8	DEEP CREEK PASS	MT	0.01E	0.01
DSM	DES MOINES	IA	0.01	0.01
DMX	DES MOINES WFO	IA	0.01E	0.01
DINM8	DILLON 9SSE	MT	0.01E	0.01
DODM8	DODSON	MT	0.01E	0.01
DMRM8	DODSON 2W, MILK R	MT	0.01E	0.01
DTUC2	DRAKE 5E	CO	0.01E	0.01
BIMC2	DRAKE, BIG THOMPSON	CO	0.01E	0.01
DREM7	DRESDEN (DNR)	MO	0.01	0.01
DNCN1	DUNCAN 2S, PLATTE R	NE	0.01E	0.01
EGNS2	EGAN	SD	0.01E	0.01
KDKC2	ELDORA 3W AMRAD	CO	0.01E	0.01
ELGN1	ELGIN	NE	0.01E	0.01
RCA	ELLSWORTH AFB	SD	0.01E	0.01
EMMI4	EMMETSBURG	IA	0.01E	0.01
COB087	ERIE 3SW	CO	0.01E	0.01

FARS2 FARMINGDALE, RAPID C SD 0.01E 0.01  
 FLTM8 FLATWILLOW 4ENE MT 0.01E 0.01  
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MTDN1	FLAXVILLE 5E	MT	0.01E	0.01
FCS	FORT CARSON	CO	0.01E	0.01
FOSI4	FOSTORIA	IA	0.01E	0.01
FKNN1	FRANKLIN, CENTER CR	NE	0.01E	0.01
FRDM8	FRENCHMAN DAM	MT	0.01E	0.01
FLTN1	FULLERTON	NE	0.01E	0.01
GDNS2	GARDEN CITY	SD	0.01E	0.01
GLWM8	GLASGOW 3SE, MILK R	MT	0.01E	0.01
GGW	GLASGOW INTL AIRPORT	MT	0.01	0.01
GGWM8	GLASGOW WFO	MT	0.01	0.01
GNAM8	GLENTANA 4SW	MT	0.01E	0.01
WAWC2	GRANBY 4NNW	CO	0.01E	0.01
GJT	GRAND JUNCTION	CO	0.01	0.01
GDLC2	GRAND LAKE 6SSW	CO	0.01E	0.01
GSSM8	GRASS RANGE	MT	0.01E	0.01
FWFM8	GRASS RANGE 19SSE	MT	0.01E	0.01
GRNI4	GREENFIELD	IA	0.01E	0.01
GRTN1	GRETNA 3ESE	NE	0.01E	0.01
GSDN1	GRETNA 3NE	NE	0.01E	0.01
GRAN1	GRETNA 4NE	NE	0.01	0.01
HADK1	HADDAM	KS	0.01	0.01
HLIN8	HALLIDAY	ND	0.01E	0.01
0592N8	HANNOVER 3E	ND	0.01E	0.01
HLMM8	HARLEM 20S	MT	0.01E	0.01
HRSI4	HARRIS	IA	0.01E	0.01
HLKI4	HAVELOCK	IA	0.01E	0.01
ZEDK1	HAYS 15NNE	KS	0.01E	0.01
HASK1	HAYS 1S	KS	0.01E	0.01
HZNN8	HAZEN 1S, KNIFE R	ND	0.01E	0.01
HENN1	HENRY, NO PLATTE R	NE	0.01E	0.01
HRFS2	HEREFORD 12SW	SD	0.01E	0.01
HICN1	HICKMAN	NE	0.01E	0.01
HCKN1	HICKMAN WAGONTRAIN L	NE	0.01E	0.01
PNWS2	HILLAND 2NW	SD	0.01E	0.01
HOYC2	HOYT 1S	CO	0.01E	0.01
HYTW4	HOYT PEAK	WY	0.01E	0.01
WYCM9	HULETT 34WNW	WY	0.01E	0.01
IDGI4	IDA GROVE 5NW	IA	0.01E	0.01
IPIN1	IMPERIAL 13N	NE	0.01E	0.01
BLCM8	INGOMAR 16NE	MT	0.01E	0.01
IRHW4	IRISH ROCK	WY	0.01E	0.01
ITHN1	ITHACA, WAHOO CR	NE	0.01E	0.01
JAC	JACKSON HOLE AIRPORT	WY	0.01E	0.01
JMS	JAMESTOWN AIRPORT	ND	0.01	0.01
JERM7	JERICO SPRINGS 3S	MO	0.01E	0.01
JLN	JOPLIN	MO	0.01	0.01
JLBC2	JULESBURG	CO	0.01E	0.01
JBGC2	JULESBURG RETURN	CO	0.01	0.01
JULC2	JULESBURG, CHAN #2	CO	0.01E	0.01

KTHN8	KATHRYN	ND	0.01E	0.01
KNNM5	KENNETH 3NE	MN	0.01E	0.01
KEYC2	KEYSTONE 7ESE	CO	0.01E	0.01
COEL46	KIOWA 13ENE	CO	0.01E	0.01

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COEL9	KIOWA 14ENE	CO	0.01E	0.01
KITC2	KITTREDGE GDDS	CO	0.01E	0.01
COB083	LAFAYETTE	CO	0.01E	0.01
RYLS2	LAKE CITY 3SW	SD	0.01E	0.01
LRAM7	LAMAR 6N	MO	0.01E	0.01
RBYM8	LAURIN 2SW	MT	0.01E	0.01
COMR63	LEEDER 10N	CO	0.01E	0.01
0308N8	LEITH 14SW	ND	0.01E	0.01
LNPM8	LENNEP 5SW	MT	0.01E	0.01
LNXI4	LENOX	IA	0.01E	0.01
LIBM7	LIBERAL 1SE	MO	0.01E	0.01
LIEM7	LIBERAL 3SW	MO	0.01E	0.01
EHNC2	LIVERMORE, POUDRE R	CO	0.01E	0.01
LRGM8	LIVINGSTON AIRPORT	MT	0.01	0.01
LBRM7	LONG BRANCH RES	MO	0.01	0.01
LONC2	LONGMONT 2ESE	CO	0.01E	0.01
COB0143	LONGMONT 2N	CO	0.01	0.01
LGMC2	LONGMONT 2NE AMRAD	CO	0.01E	0.01
LSVC2	LOUISVILLE 2SW	CO	0.01E	0.01
COLR731	LOVELAND 4WSW	CO	0.01E	0.01
MTAM8	MALTA 35S	MT	0.01E	0.01
MALI4	MALVERN	IA	0.01E	0.01
MANN8	MANDAN, MISSOURI R	ND	0.01E	0.01
MNLN1	MANLEY	NE	0.01E	0.01
MRTK1	MARMATON, MARMATON R	KS	0.01E	0.01
MML	MARSHALL AIRPORT	MN	0.01E	0.01
COLR253	MASONVILLE 8NW	CO	0.01E	0.01
MLKN8	MCCLUSKY	ND	0.01E	0.01
MEDN1	MEAD 6S	NE	0.01E	0.01
MELS2	MELLETTTE 4W	SD	0.01E	0.01
MLTS2	MELLETTTE 7NE	SD	0.01E	0.01
MNKN8	MENOKEN 2WNW	ND	0.01E	0.01
MLS	MILES CITY AIRPORT	MT	0.01E	0.01
MFRI4	MILFORD 4NW	IA	0.01E	0.01
MGZM8	MILLEGAN 14SE	MT	0.01E	0.01
MSO	MISSOULA SITE 1	MT	0.01	0.01
MVLI4	MISSOURI VALLEY 1NNE	IA	0.01E	0.01
MCLS2	MITCHELL	SD	0.01E	0.01
MRCW4	MOORCROFT 7W	WY	0.01E	0.01
YMJ	MOOSE JAW	SK	0.01E	0.01
CBUM8	MOSBY 39NNW	MT	0.01	0.01
MOSM8	MOSBY 4ENE	MT	0.01E	0.01
MSBM8	MOSBY, MUSSEL RI	MT	0.01E	0.01
MSSM7	MUSSEL FORK	MO	0.01	0.01
NCVN1	NEBRASKA CITY #2	NE	0.01E	0.01
NLHN1	NELIGH	NE	0.01E	0.01
ECS	NEWCASTLE 5NW	WY	0.01E	0.01

NCRK1	NORCATUR, SAPPA CR	KS	0.01	0.01
TCKW4	NORRIS JUNCTION 1NW	WY	0.01E	0.01
NOTK1	NORTON 3SW	KS	0.01E	0.01
NRTK1	NORTON 9SSE	KS	0.01E	0.01
NMNC2	NUNN	CO	0.01E	0.01
NNNC2	NUNN	CO	0.01E	0.01

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FOFW4	OLD FAITHFUL	WY	0.01E	0.01
CBYN1	OMAHA	NE	0.01E	0.01
FSNN1	OMAHA AIRPORT	NE	0.01E	0.01
OMHN1	OMAHA, MISSOURI R	NE	0.01E	0.01
OPMM8	OPHEIM 12SSE	MT	0.01E	0.01
ORHM8	OPHEIM 21NW, ROCK CR	MT	0.01E	0.01
ORNN1	ORLEANS 2W, REPUB R	NE	0.01	0.01
OTON1	OTOE	NE	0.01E	0.01
PAHW4	PAHASKA, NF SHOSHONE	WY	0.01E	0.01
NFKW4	PAHASKA, SHOSHONE R	WY	0.01	0.01
PSBN1	PAPILLION 6NW	NE	0.01E	0.01
MLDN1	PAPIO CREEK DAM	NE	0.01E	0.01
PPF	PARSONS AIRPORT	KS	0.01E	0.01
WPO	PILOT MOUND	MB	0.01	0.01
PGEN8	PINGREE, PIPESTEM CR	ND	0.01E	0.01
PNNS2	PINNACLES RANGER STA	SD	0.01E	0.01
PTWM8	PLENTYWOOD 1NE	MT	0.01E	0.01
PKCW4	POCKET CREEK SNOTEL	WY	0.01E	0.01
POKM7	POLK, POMME DE TERRE	MO	0.01E	0.01
RAGN1	RAGAN	NE	0.01E	0.01
RLHN8	RALEIGH, CANNONBALL	ND	0.01E	0.01
RLGN8	RALEIGH, CEDAR CR	ND	0.01E	0.01
RAP	RAPID CITY	SD	0.01	0.01
RCTS2	RAPID CITY (AMRAD)	SD	0.01E	0.01
SEWS2	RAPID CITY 7SE	SD	0.01	0.01
UNRS2	RAPID CITY WFO	SD	0.01E	0.01
UNR	RAPID CITY WFO	SD	0.01E	0.01
HAWS2	RAPID CR BELOW DITCH	SD	0.01	0.01
RAUN8	RAUB 5NNE	ND	0.01E	0.01
WAYS2	RAYMOND 3NE	SD	0.01E	0.01
RAYM8	RAYMOND BORDER STA	MT	0.01E	0.01
REFC2	RED FEATHER LAKES	CO	0.01E	0.01
RELM8	RED LODGE	MT	0.01E	0.01
RCCM7	RICHARDS, MARMATON R	MO	0.01E	0.01
RIVW4	RIVERTON	WY	0.01E	0.01
ARAW4	RIVERTON 7SW	WY	0.01E	0.01
RVTW4	RIVERTON, LTL WIND R	WY	0.01	0.01
RKSM8	ROCK SPRINGS	MT	0.01E	0.01
RLLC2	ROLLINSVILLE GDDS	CO	0.01E	0.01
ROYS2	ROY LAKE ST PARK	SD	0.01E	0.01
RYTM8	RYEGATE	MT	0.01E	0.01
RYEM8	RYEGATE 2E	MT	0.01E	0.01
SCBM8	SCOBAY	MT	0.01E	0.01
SCOM8	SCOBAY 4NW	MT	0.01E	0.01
SEMW4	SEMINOE DAM	WY	0.01E	0.01

SETW4	SEMINOE DAM DCP	WY	0.01E	0.01
SHIN8	SHIELDS	ND	0.01E	0.01
SIDM8	SIDNEY 2S	MT	0.01E	0.01
SBLW4	SODA BUTTE CREEK	WY	0.01E	0.01
SPDM8	SPRINGDALE	MT	0.01E	0.01
0517N8	ST ANTHONY 7NE	ND	0.01E	0.01
SMIM8	ST MARIE	MT	0.01E	0.01
DDKM8	ST MARY, DIVIDE CR	MT	0.01E	0.01

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC

DATE=Jun 17, 2011 - 14:02:15

0

STATION				PERIOD
ID	DESCRIPTION	STATE	06/17	SUM
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STMN1	STAMFORD, SAPPA CR	NE	0.01E	0.01
STRC2	STERLING	CO	0.01E	0.01
STEC2	STERLING 5NW AMRAD	CO	0.01E	0.01
0124N8	STERLING 6SE	ND	0.01E	0.01
STKM7	STOCKTON 9NE	MO	0.01E	0.01
SBFS2	STURGIS 20NE	SD	0.01E	0.01
SLBW4	SUNLIGHT BASIN	WY	0.01E	0.01
TMPM8	TAMPICO, MILK R	MT	0.01E	0.01
TERM8	TERRY 1E	MT	0.01E	0.01
TYNM8	TERRY 21NNW	MT	0.01E	0.01
COAD22	THORNTON 2SSE	CO	0.01E	0.01
TIBM8	TIZER BASIN	MT	0.01E	0.01
TSFK1	TOPEKA SW 29TH ST	KS	0.01E	0.01
Y68	TRACY	MN	0.01E	0.01
TRNI4	TURIN 4SW, M-H DITCH	IA	0.01E	0.01
TURI4	TURIN, LTL SIOUX R	IA	0.01E	0.01
TURM8	TURNER	MT	0.01E	0.01
TNRM8	TURNER 11N	MT	0.01E	0.01
PTNW4	UPTON 14ENE	WY	0.01E	0.01
UIHM7	URICH 2SW	MO	0.01E	0.01
VLRW4	VALLEY 9NNE	WY	0.01E	0.01
VEBS2	VEBLEN 5SE	SD	0.01E	0.01
VER52	VERMILLION 3N	SD	0.01E	0.01
VNAM7	VIENNA 2WNW	MO	0.01E	0.01
VIRS2	VIRGIL (AMRAD)	SD	0.01E	0.01
VIGS2	VIRGIL 2NW	SD	0.01E	0.01
VRLS2	VIRGIL 9SW	SD	0.01E	0.01
VOLS2	VOLGA	SD	0.01E	0.01
WCOM7	WACO 2E	MO	0.01E	0.01
WLNK1	WALNUT 3S	KS	0.01E	0.01
WAPW4	WAPITI 1NE	WY	0.01E	0.01
WPRW4	WAPITI 1W	WY	0.01E	0.01
BABC2	WARD 3NNW, BEAVER CR	CO	0.01E	0.01
BLCW4	WASHAKIE 19NW	WY	0.01E	0.01
STCK1	WEBSTER DAM	KS	0.01E	0.01
WGTC2	WELLINGTON 5WNW	CO	0.01E	0.01
WGSM8	WHITE SULPHUR SPRNGS	MT	0.01E	0.01
WSSM8	WHITE SULPHUR SPRNGS	MT	0.01E	0.01
WILM7	WILLOW SPRINGS	MO	0.01E	0.01
WIGN8	WING	ND	0.01E	0.01
WINM8	WINIFRED	MT	0.01E	0.01
WITM8	WINNETT 12SW	MT	0.01E	0.01
WNTM8	WINNETT 8ESE	MT	0.01E	0.01



WRAC2	WRAY	CO	0.01E	0.01
COYU58	WRAY 1WSW	CO	0.01E	0.01
YLWW4	YELLOWSTONE(MAMMOTH)	WY	0.01E	0.01
YOCK1	YOCEMENTO, BIG CR	KS	0.01E	0.01
ZRCM8	ZURICH DIVERSION	MT	0.01E	0.01

>>>>>>> STOP

\*\*\*\*\*  
\*\*\*\*\*

0 CPU TIME USED = 0 MINUTES, 0 SECONDS

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC

DATE=Jun 17, 2011 - 14:02:15

0

0 CLOCK TIME USED = 0 MINUTES, 0 SECONDS

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\*\*\*\*\*

[REDACTED] NWO

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**From:** Schenk, Kathryn M NWO  
**Sent:** Friday, June 17, 2011 10:41 AM  
**To:** Farhat, Jody S NWD02  
**Cc:** [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWO; Bertino, John J Jr NWO  
**Subject:** Oahe

Just talked to Eric and he said all units are back and they could go to 167,000 if needed without the spillway. Katie.

**NWO**

---

**From:** [REDACTED] / NWO  
**Sent:** Friday, June 17, 2011 10:15 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; DLL-CENWO-OD-GA; [REDACTED]  
NWO; [REDACTED] NWD02; [REDACTED] HQ02; [REDACTED] NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; Schenk, Kathryn M NWO; [REDACTED] NWO;  
[REDACTED] Y@ POD; [REDACTED] NWO  
**Subject:** Today's Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-17 Garrison Flood Fight Daily Staff Notes.docx; Main Stem Regulation Forecast - Three-Week.htm

Classification: UNCLASSIFIED

Caveats: NONE

Attached are today's notes, along with the current 3-week forecast...

[REDACTED]  
Acting Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED

Caveats: NONE

**Garrison Flood Fight  
Daily Staff Notes  
Friday, June 17, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1853.70. Yesterday's elevation: 1853.69
  - Current Tail water Elevation 1684.19. Yesterday's elevation 1683.61
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1688.2
  - Estimated Inflows 175,500 cfs, Releases: 150,000 cfs
  - Release Schedule: Increase from 145,000 cfs to 150,000 cfs today.
  - Spillway gates #'s 1 through 28 are open 2 feet.
  - Current release distribution: Power Plant - 30,000 cfs, Regulating Tunnels - 60,000 cfs, Spillway - 60,000 cfs.
  - We are shifting our releases between the regulatory tunnels and the power plant to provide load control for WAPA. Scheduled load and water release changes are being made at 0800 and 2000 hours. Garrison was operated as the swing plant for WAPA the past couple days while repairs were being made at Ft. Randall. Garrison went back to a base load late yesterday afternoon.
- Fort Peck releases 65,000 cfs scheduled to remain at that level until June 19th before going back down to 60,000 cfs.
- Missouri River Elevations:
  - Bismarck gage: Currently 18.33 feet. Protection measures in Bismarck were to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: The river crested yesterday at 29.89 feet. The elevation as of 3:15 p.m. yesterday afternoon was 29.86 feet. Previous record stage: 28.0 feet.
- Current Snowpack: Snow pack data not updated for today...
  - Ft Peck - crested at 141% of normal peak; currently 70% of the normal peak remains.
  - Garrison - crested at 136% of peak; currently 78% of the normal peak remains.

**Garrison Dam Surveillance:**

- Surveillance (Team Leader, [REDACTED]; cell: (701) [REDACTED])
  - Currently investigating a potential leak in the potable water line near the entrance road to the power plant. The water line is in a cased pipe so any leaks flow back to a manhole.
  - Currently addressing concerns regarding the surcharge of the reservoir. If the reservoir elevation rises as anticipated to elevation 1855.6, the Spillway gates would need to be raised to 3.5 feet open to provide 1 foot of freeboard. At this opening, the spillway would be releasing approximately 110,000 cfs.
- Instrumentation (Team Leader [REDACTED]; cell: (701) [REDACTED])
  - Nothing new reported.

### **Snake Creek Embankment/ Lake Audubon:**

- Surveillance:
  - No new issues, plan to assess the embankment later this week...
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

### **Williston Levee:**

- POC's [REDACTED], cell: [REDACTED] (701) 720- [REDACTED].
- Inspection teams found an additional 18 pin boils yesterday.
- Mark Clark, Shannon Jeffers, and Jeff Keller met with Williston City Officials yesterday for a press conference. It was reported that the conference went well. Adjutant General Sprynczynatyk did speak favorably about the integrity of the levee system.
- Mr. Keller gave two separate interviews with KXMC TV from Minot and KUMV TV from Williston.

### **Natural Resources:**

- POC's [REDACTED], cell: (701) 222- [REDACTED], [REDACTED].
- Law enforcement contract with Mercer County is now in place.
- [REDACTED] and [REDACTED], from the District Office, are scheduled to arrive at Garrison today to assist and provide our personnel some reprieve. The assistance is much appreciated!

### **Outside Maintenance:**

- Will continue grading and adding material to the West Spillway overlook.
- Will coordinate adding rock to the lower end of the tailrace riprap on both East and West banks, as the current and fluctuating tailrace elevations are back cutting the riprap. Current conditions will not allow access on the East bank as it is too muddy. Work will be pursued as soon as conditions permit.
- Will add material to improve access up the West spillway roads.
- Temporary water line: If a leak is noted, notify your supervisor, Chuck Phelps, or I ASAP. Also notify City of Riverdale, "Clay" at (701) 471-6433 or Charles Sorensen ext. 232, or home [REDACTED]. Shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.

### **Power Plant:**

- Going back to four units generating today and backing off again this evening to meet WAPA load demands. Changes will be made at 8:00 am and 8:00 pm. Load is expected to be cut to 200 MW load this evening and remain there until Monday morning.
- Drawings for monitoring and/or automation of the regulating tunnel gates have been sent to Omaha for review/concurrence and to ensure compliance with EC 1110-2-6071, which restricts remote operations for water control features that

pose life safety risk. Concerns remain that automation will further exacerbate the desire to operate these gates frequently as part of power load control for WAPA. I still want an Engineering opinion regarding whether these gates are designed for such use?

#### Weather/Safety:

<b>Today:</b> Showers and thunderstorms. Some of the storms could produce heavy rainfall. High near 64. East wind 10 to 17 mph becoming west. Winds could gust as high as 24 mph. Chance of precipitation is 100%. New rainfall amounts between a quarter and half of an inch possible.	<b>Tonight:</b> Partly cloudy, with a low around 50. West wind between 6 and 16 mph, with gusts as high as 23 mph.	<b>Saturday:</b> A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 75. South wind between 6 and 11 mph.
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- [REDACTED] and [REDACTED] have volunteered to work on evacuation plans. I still need to coordinate with them on development of these plans.

#### Needed Resources:

- Pursuing printing of overview maps to be utilized for dam safety surveillance. Printing will be done in Omaha and Fed-exed to the project.
- NR's placed an order for new life jackets.
- Currently working with ACE-IT and looking into upgrading our radios so that we can utilize them effectively for local communication. Cell phone coverage is spotty in several locations. Signal booster has been ordered to improve cell phone reception.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED] (cell: [REDACTED] / Home: [REDACTED]).

#### OPM Notes:

- [REDACTED] is on a much needed and much deserved vacation. [REDACTED] will return to ND on Sunday. [REDACTED] will be Acting OPM. His cell number is ([REDACTED]).
- Everyone needs to be watching for large trees/debris that is headed for our spillway. If large debris is noted, Outside Maintenance should be notified ASAP so they can launch a boat and remove the debris. Also need the power plant to walk the spillway gates daily to check for debris caught under the gates. If a large tree is noted, Dale should be notified to determine corrective actions.
- Request has been made to USGS to survey the Spillway Channel.
- Many folks are working long hours and/or late shifts. Please watch out for each other and ensure that safety procedures are followed!

This regulation forecast was made using computed reservoir inflows based on 5-days of forecast precipitation and mountain snowmelt runoff. The regulation forecast is subject to change daily as actual events occur.

\* Indicates release changes from previous forecast

		REGULATION FORECAST												06/16/11							
		FTPK				GARR				OAHE				BEND				FTRA			
		24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE
16	T	2252.3	67.0	65.0	5.14	1853.9	181.6	145.0	9.27	1618.6	160.1	150.0	13.89	1419.8	150.0	150.0	8.48	1363.9	152.4	143.0	9
17	F	2252.2	62.0	65.0	5.14	1854.0	175.5	150.0	9.27	1618.7	162.7	150.0	13.90	1419.8	150.0	150.0	8.45	1364.1	152.4	143.0*	9
18		2252.2	58.0	65.0	5.13	1854.1	167.6	150.0	9.28	1618.8	163.4	150.0	13.90	1419.8	150.0	150.0	8.43	1364.2	152.4	148.0	9
19		2252.1	56.0	65.0	5.13	1854.2	163.3	150.0	9.28	1618.8	162.8	150.0	13.91	1419.8	150.0	150.0	8.42	1364.3	152.4	148.0	9
20	M	2252.1	54.0	60.0	5.13	1854.2	162.1	150.0	9.28	1618.9	161.0	150.0	13.91	1419.8	150.0	150.0	8.40	1364.4	152.4	148.0	9
21	T	2252.0	52.0	60.0	5.13	1854.3	160.8	150.0	9.29	1618.9	159.0	150.0	13.92	1419.8	150.0	150.0	8.39	1364.4	152.4	148.0	9
22	W	2251.9	50.0	60.0	5.13	1854.3	158.6	150.0	9.29	1619.0	158.0	150.0	13.92	1419.8	150.0	150.0	8.38	1364.5	152.4	148.0	9
23	T	2251.8	48.0	60.0	5.13	1854.3	154.8	150.0	9.29	1619.0	157.5	150.0	13.92	1419.8	150.0	150.0	8.36	1364.6	152.4	148.0	9
24	F	2251.7	49.0	60.0	5.12	1854.3	149.6	150.0	9.29	1619.0	157.5	150.0	13.92	1419.8	150.0	150.0	8.35	1364.7	152.4	148.0	9
25		2251.6	53.0	60.0	5.12	1854.3	146.0	150.0	9.29	1619.1	157.5	150.0	13.93	1419.8	150.0	150.0	8.33	1364.8	152.2	148.0	9
26		2251.6	59.0	60.0	5.12	1854.3	151.0	150.0	9.29	1619.1	157.5	150.0	13.93	1419.8	150.0	150.0	8.32	1364.9	152.0	148.0	9
27	M	2251.7	64.0	60.0	5.12	1854.3	158.0	150.0	9.29	1619.1	157.5	150.0	13.93	1419.8	150.0	150.0	8.31	1365.0	151.9	148.0	9
28	T	2251.7	69.0	60.0	5.12	1854.4	164.0	150.0	9.29	1619.2	157.5	150.0	13.93	1419.8	150.0	150.0	8.29	1365.1	151.7	148.0	9
29	W	2251.9	74.0	60.0	5.13	1854.5	171.0	150.0	9.30	1619.2	156.5	150.0	13.94	1419.8	150.0	150.0	8.28	1365.1	151.5	148.0	9
30	T	2252.0	74.0	60.0	5.13	1854.7	177.0	150.0	9.31	1619.2	155.0	150.0	13.94	1419.8	150.0	150.0	8.27	1365.2	151.4	148.0	9
1	F	2252.1	74.0	60.0	5.13	1854.8	175.0	150.0	9.31	1619.3	154.0	150.0	13.94	1419.8	150.0	150.0	8.26	1365.3	151.2	148.0	9
2		2252.1	70.0	60.0	5.13	1854.9	173.0	150.0	9.32	1619.3	153.0	150.0	13.94	1419.8	150.0	150.0	8.25	1365.3	151.0	148.0	9
3		2252.2	65.0	60.0	5.13	1855.0	172.0	150.0	9.32	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.24	1365.4	150.9	148.0	9
4	M	2252.1	60.0	60.0	5.13	1855.1	171.0	150.0	9.33	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.23	1365.4	150.7	148.0	9
5	T	2252.1	59.0	60.0	5.13	1855.2	170.0	150.0	9.33	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.23	1365.5	150.5	148.0	9
6	W	2252.1	54.0	60.0	5.13	1855.3	169.0	150.0	9.34	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.22	1365.6	150.4	148.0	9
7	T	2252.0	50.0	60.0	5.13	1855.3	166.0	150.0	9.34	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.21	1365.6	150.2	148.0	9
8	F	2251.9	49.0	60.0	5.13	1855.4	164.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.21	1365.6	150.2	148.0	9
9		2251.8	49.0	60.0	5.13	1855.5	162.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.20	1365.7	150.2	148.0	9
10		2251.7	48.0	60.0	5.12	1855.5	160.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.19	1365.7	150.2	148.0	9
11	M	2251.6	47.0	60.0	5.12	1855.5	158.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.18	1365.8	150.2	148.0	9
12	T	2251.4	46.0	60.0	5.12	1855.6	156.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.18	1365.8	150.2	148.0	9
13	W	2251.3	45.0	60.0	5.11	1855.6	154.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.17	1365.9	150.2	148.0	9
14	T	2251.2	44.0	60.0	5.11	1855.6	152.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.16	1365.9	150.2	148.0	9
15	F	2251.0	38.0	60.0	5.11	1855.6	150.0	150.0	9.35	1619.3	152.0	150.0	13.94	1419.8	150.0	150.0	8.16	1366.0	150.2	148.0	9

#### Project:

24EL Midnight Elevation (feet above mean sea level)  
 24ID Daily Average Inflow (kcfs)  
 24OD Daily Average Release (kcfs)  
 24GE Daily Power Generation (MWh)

#### System:

GE Daily Power Generation (MWh)  
 SG Midnight Storage (AF)  
 DSG Daily Storage Change (AF)

#### Units:

kcfs thousand cubic feet per second  
 MWh megawatt hour  
 AF acre-feet

Pagemaster: Water Management; CENWD-PDR;  
 Internet E-Mail Address: [Missouri.Water.Management@nwd02.usace.army.mil](mailto:Missouri.Water.Management@nwd02.usace.army.mil)

[REDACTED] NWO

---

**From:** Schenk, Kathryn M NWO  
**Sent:** Friday, June 17, 2011 9:13 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: Main Control Gates (UNCLASSIFIED)

FYI

-----Original Message-----

**From:** [REDACTED] NWO  
**Sent:** Thursday, June 16, 2011 5:23 PM  
**To:** Schenk, Kathryn M NWO; Bertino, John J Jr NWO; [REDACTED] NWO; [REDACTED] NWO  
**Subject:** Main Control Gates (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

I will send drawing tomorrow to show the elevation of the top of the inner chamber. We can close the Emergency Gates which should eliminate the issue if we were to rise more than expected. We have had trouble getting accurate lake readings in the past when we have done this. I will send some drawings tomorrow.

[REDACTED].  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
PH: [REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE



**NWO**

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**From:** [REDACTED] NWD02  
**Sent:** Friday, June 17, 2011 8:57 AM  
**To:** [REDACTED] NWD02; CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED]  
[REDACTED] MVR; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO  
**Subject:** RE: Mainstem data for NWO sitrep 6/15/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Correction. Average release from Ft. Randall is 143,400

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Friday, June 17, 2011 8:46 AM  
**To:** [REDACTED] NWD02; CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED]  
MVR; [REDACTED] NWO  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO  
**Subject:** RE: Mainstem data for NWO sitrep 6/15/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/16 Pool Elev: 2252.2 ft-msl

24-hr change: -0.1'

6/16 Ave Inflow: 68,000 cfs

6/16 Ave Release: 65,800 cfs

6/17 Scheduled Release: 65,000 cfs

Garrison Dam (ND)

6/16 Pool Elev: 1853.7 ft-msl

24-hr change: 0.1

6/16 Ave Inflow: 154,000 cfs

6/16 Ave Release: 143,800 cfs

6/17 Scheduled Release: 150,000 cfs

Oahe Dam (SD)

6/16 Pool Elev: 1618.6 ft-msl

24-hr change: 0.0'

6/16 Ave Inflow: 154,000 cfs

6/16 Ave Release: 150,400 cfs

6/17 Scheduled Release: 150,000 cfs

Big Bend Dam (SD)

6/16 Pool Elev: 1419.7 ft-msl

24-hr change: 0.1'

6/16 Ave Inflow: 150,000 cfs

6/16 Ave Release: 143,800 cfs

6/17 Scheduled Release: 150,000 cfs

Fort Randall Dam (SD)

6/16 Pool Elev: 1364.2 ft-msl

24-hr change: 0.5'

6/16 Ave Inflow: 150,000 cfs

6/16 Ave Release: 143,800 cfs

6/17 Scheduled Release: 143,000 cfs

Gavins Point Dam (NE-SD)

6/16 Pool Elev: 1207.7 ft-msl

24-hr change: 0.1'

6/16 Ave Inflow: 152,000 cfs

6/16 Ave Release: 150,100 cfs

6/17 Scheduled Release: 150,000 cfs

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**NWO**

---

**From:** [REDACTED] NWD  
**Sent:** Friday, June 17, 2011 8:25 AM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: Itinerary interviews (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

Here is the DVIDS schedule so far this morning .... again, they may get more requests later this morning as the news day develops.

So right now you have a local TV interview at 2:15 and the Weather Channel interview at 2:30. I will keep you updated as soon as I hear anything new. I asked them to keep me in the loop so I can keep you updated.

[REDACTED]  
-----Original Message-----

From: O'Hara, Thomas A NWO  
Sent: Friday, June 17, 2011 8:22 AM  
To: [REDACTED]  
Subject: FW: Itinerary interviews

(Currently working Missouri Floodflight efforts. I will reply to your email as I can)  
BUILDING STRONG® Thomas A. O'Hara III Executive Officer Omaha District, U.S. Army Corps of Engineers  
1616 Capitol Avenue, Suite 9000  
(Attn: CENWO-EX-XA)  
Omaha, NE 68102-4901  
402-995-2004  
[thomas.a.ohara@usace.army.mil](mailto:thomas.a.ohara@usace.army.mil)

-----Original Message-----

From: Josh Vierela [<mailto:jvierela@dvidshub.net>]  
Sent: Friday, June 17, 2011 8:14 AM  
To: Cochran, Mary (Public Affairs Contractor); [cochrantime@yahoo.com](mailto:cochrantime@yahoo.com); O'Hara, Thomas A NWO; Chris Paul  
Subject: Itinerary interviews

Here is our tentative schedule, I will provide the stations wanting to show up in person with Tom's contact so they can coordinate directly on site. If there are any issues let me know. I will send out a final schedule closer to the start of the interviews.

All times are EASTERN:

1:15- ABC Radio - BG McMahon

1:30 - Weather Channel - BG McMahon (Actual hit time 1:40) Live

\*\*\* In person - KETV - BG McMahon

2:15 - KPTM-TV - Jody Farhat \*\*\* Will show up on site

2:30 - Weather Channel - Jody Farhat (actual hit time 2:40) Live

3:15 - KFAB-AM - Col. Ruch

3:30 - Weather Channel - Col Hofman (actual hit time 3:40) Live

3:45 - KMTV - Col. Ruch (note KMTV also provides the news for KEZO-FM, KOMJ-AM and KSRX-FM)

Josh Vierela | Encompass Digital Media

Military Media Relations Liaison

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3845 Pleasantdale Road | Atlanta, GA 30340 | Media hotline 678.421.6612

Dir 678.421.6832 | DSN 312.367.1792/1761 | [jvierela@dvidshub.net](mailto:jvierela@dvidshub.net)

ENC\_V\_4c\_Logo\_TEMP\_RGB

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Johnston, Paul T HQ@ NWO  
**Sent:** Friday, June 17, 2011 8:19 AM  
**To:** 'Bob Watson'  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: River Residents' complaints

Bob,

How about 10:30? We'll call you on the number below.

Paul

-----Original Message-----

From: Bob Watson [<mailto:bwatson@newstribune.com>]  
Sent: Thursday, June 16, 2011 3:56 PM  
To: Johnston, Paul T HQ@ NWO  
Cc: MRJIC  
Subject: River Residents' complaints

PAUL ----

((Or whoever else is responsible for Media Questions these days)) ----

We have talked with several Missouri River residents and farmers, who have complained that the Corps of Engineers BLEW IT this spring, holding on to water in the Upstream Reservoirs WAY TOO LONG, when you knew you had a DEEP SNOWPACK .... and that you could have avoided a lot of the current flooding concerns if you just had started releasing water into the lower Missouri when the river was at 10 feet instead of the current, higher levels.

((I'm pretty sure this isn't the first time you've heard this, or similar, complaint .... ))

1) Does the Corps have a reaction/comment to this complaint?

2) Can you show us how the numbers you had on snowpack and rainfall in the Upper Missouri Basin, and in the Mountains that feed the Upper Missouri, affected the decisions the Corps made on storing or releasing water from the Mainstem Dam reservoirs??

3) What part of the Corps' River Management duties control the decisions you've made this spring???

Please respond by e-mail, or call me Friday after 10 a.m. CDT at 573/761-0245.

Bob Watson  
Jefferson City News Tribune

3:55 p.m.  
6-16-2011

## Burke, Linda F NWO

**From:** Bill Olthoff [Bill.Olthoff@noaa.gov]  
**Sent:** Saturday, June 18, 2011 9:18 PM  
**To:** Swenson, Michael A NWD02; Grode, Kevin R NWD02; Stamm, Kevin D NWD02; Farhat, Jody S NWD02; Knofczynski, Joel D NWD02  
**Subject:** Missouri mainstem forecast

RVFMOM

### RIVER FORECAST

NWS MISSOURI BASIN RIVER FORECAST CENTER PLEASANT HILL MO 0130Z SUN JUN 19 2011

:  
: THIS PRODUCT HAS PRELIMINARY DATA THAT MAY BE SUBJECT TO REVISION.  
: REFER TO YOUR LOCAL WFO FOR THE LATEST OFFICIAL RIVER FORECAST.

: FORECAST GROUP IS MISSOURI MAINSTEM

\*\*\*\* EVENING UPDATE \*\*\*\*

: ==> This forecast includes obsd precip & 24 hours of QPF <==

: =====  
: ==> PLEASE REFER TO THE FOLLOWING WEBSITE FOR <==  
: ==> LONGER TERM CREST INFORMATION <==  
: ==> <==  
: ==> <http://www.nwo.usace.army.mil/html/op-e/flood.html> <==  
: =====

:  
:  
:  
:  
:  
:GAVINS PT RES NE - MISSOURI RIVER  
:  
:

:LATEST ESTIMATED DISCHARGE 150.00 KCFS AT 0000Z ON 0619  
.ER GPDN1REL 20110619 Z DC201106190130/DH06/QTIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 150.00  
.E2 :0619:/ 150.00/ 150.00/ 150.00/ 150.00  
.E3 :0620:/ 150.00/ 150.00/ 150.00/ 150.00  
.E4 :0621:/ 150.00/ 150.00/ 150.00/ 150.00  
.E5 :0622:/ 150.00/ 150.00/ 150.00/ 150.00  
.E6 :0623:/ 150.00/ 150.00/ 150.00

:  
:BAGNELL RES MO - OSAGE RIVER  
:  
:

:LATEST ESTIMATED DISCHARGE 11.04 KCFS AT 0000Z ON 0619  
.ER LKSM7REL 20110619 Z DC201106190130/DH06/QTIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 10.00  
.E2 :0619:/ 9.00/ 9.00/ 9.00/ 9.00  
.E3 :0620:/ 12.00/ 12.00/ 12.00/ 12.00



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.E4 :0621:/    12.00/    12.00/    12.00/    12.00
.E5 :0622:/    12.00/    12.00/    12.00/    12.00
.E6 :0623:/    12.00/    12.00/    12.00
:
:SOUTH SIOUX CITY NE - MISSOURI RIVER      HSA - FSD
:FLOOD STAGE 30.0    FCST ISSUANCE STAGE 28.0
:
:LATEST STAGE 33.5 FT AT 0100Z ON 0619
.ER SSCN1      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      33.5
.E2 :0619:/      33.5/      33.5/      33.5/      33.5
.E3 :0620:/      33.5/      33.5/      33.5/      33.5
.E4 :0621:/      33.5/      33.5/      33.4/      33.4
.E5 :0622:/      33.4/      33.4/      33.4/      33.4
.E6 :0623:/      33.4/      33.4/      33.4
.ER SSCN1      20110619 Z DC201106190130/DH06/QRIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      162.09
.E2 :0619:/      162.03/      162.24/      162.46/      162.42
.E3 :0620:/      162.36/      162.30/      162.26/      162.10
.E4 :0621:/      161.96/      161.81/      161.65/      161.50
.E5 :0622:/      161.34/      161.25/      161.12/      161.02
.E6 :0623:/      160.93/      160.82/      160.68
:
:DECATUR NE - MISSOURI RIVER      HSA - OAX
:FLOOD STAGE 35.0    FCST ISSUANCE STAGE 33.0
:
:LATEST STAGE 38.2 FT AT 0100Z ON 0619
.ER DCTN1      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      38.2
.E2 :0619:/      38.2/      38.1/      38.1/      38.1
.E3 :0620:/      38.1/      38.1/      38.1/      38.1
.E4 :0621:/      38.1/      38.1/      38.1/      38.1
.E5 :0622:/      38.1/      38.1/      38.0/      38.0
.E6 :0623:/      38.0/      38.0/      38.0
:
:BLAIR NE 2E - MISSOURI RIVER      HSA - OAX
:FLOOD STAGE 26.5    FCST ISSUANCE STAGE 25.5
:
:LATEST STAGE 31.8 FT AT 0116Z ON 0619
.ER BLAN1      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      31.8
.E2 :0619:/      31.8/      31.8/      31.8/      31.7
.E3 :0620:/      31.8/      31.7/      31.7/      31.7
.E4 :0621:/      31.7/      31.7/      31.7/      31.7
.E5 :0622:/      31.7/      31.7/      31.7/      31.7
.E6 :0623:/      31.7/      31.7/      31.7
:
:OMAHA NE - MISSOURI RIVER      HSA - OAX
:FLOOD STAGE 29.0    FCST ISSUANCE STAGE 27.0
:
:LATEST STAGE 33.3 FT AT 0100Z ON 0619
.ER OMHN1      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z

```

```

.E1 :0618:      ::      ::      /      33.4
.E2 :0619:/      33.4/      33.4/      33.4/      33.4
.E3 :0620:/      33.4/      33.4/      33.4/      33.4
.E4 :0621:/      33.4/      33.4/      33.4/      33.3
.E5 :0622:/      33.3/      33.3/      33.3/      33.3
.E6 :0623:/      33.3/      33.3/      33.3/      33.3
.ER OMHN1      20110619 Z DC201106190130/DH06/QRIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      171.96
.E2 :0619:/      171.97/      172.37/      172.59/      172.38
.E3 :0620:/      172.09/      171.85/      171.80/      171.67
.E4 :0621:/      171.59/      171.50/      171.40/      171.29
.E5 :0622:/      171.19/      171.05/      170.89/      170.73
.E6 :0623:/      170.57/      170.41/      170.25
:
:NEBRASKA CITY NE - MISSOURI RIVER      HSA - OAX
:FLOOD STAGE 18.0      FCST ISSUANCE STAGE 16.0
:
:LATEST STAGE 26.1 FT AT 0115Z ON 0619
.ER NEBN1      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      26.2
.E2 :0619:/      26.1/      26.1/      26.1/      26.2
.E3 :0620:/      26.2/      26.2/      26.1/      26.1
.E4 :0621:/      26.1/      26.1/      26.1/      26.1
.E5 :0622:/      26.1/      26.1/      26.1/      26.1
.E6 :0623:/      26.1/      26.1/      26.1/      26.1
.ER NEBN1      20110619 Z DC201106190130/DH06/QRIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      199.96
.E2 :0619:/      197.83/      196.76/      198.06/      200.14
.E3 :0620:/      200.92/      199.59/      197.49/      195.76
.E4 :0621:/      194.66/      194.77/      195.65/      195.33
.E5 :0622:/      193.90/      193.64/      194.55/      194.09
.E6 :0623:/      192.41/      192.15/      193.17
:
:BROWNVILLE NE - MISSOURI RIVER      HSA - OAX
:FLOOD STAGE 33.0      FCST ISSUANCE STAGE 31.0
:
:LATEST STAGE 42.4 FT AT 0115Z ON 0619
.ER BRON1      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      42.5
.E2 :0619:/      42.6/      42.7/      42.6/      42.7
.E3 :0620:/      42.7/      42.7/      42.7/      42.7
.E4 :0621:/      42.6/      42.6/      42.5/      42.6
.E5 :0622:/      42.6/      42.5/      42.5/      42.5
.E6 :0623:/      42.5/      42.5/      42.4/      42.4
:
:RULO NE - MISSOURI RIVER      HSA - OAX
:FLOOD STAGE 17.0      FCST ISSUANCE STAGE 15.0
:
:LATEST STAGE 25.7 FT AT 0030Z ON 0619
.ER RULN1      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      25.9
.E2 :0619:/      26.0/      26.1/      26.2/      26.2

```

.E3 :0620:/ 26.2/ 26.2/ 26.2/ 26.3  
.E4 :0621:/ 26.2/ 26.2/ 26.1/ 26.1  
.E5 :0622:/ 26.1/ 26.1/ 26.1/ 26.1  
.E6 :0623:/ 26.1/ 26.1/ 26.0  
.ER RULN1 20110619 Z DC201106190130/DH06/QRIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 191.36  
.E2 :0619:/ 195.76/ 199.50/ 201.84/ 202.07  
.E3 :0620:/ 201.94/ 202.59/ 203.54/ 203.68  
.E4 :0621:/ 202.70/ 201.11/ 199.43/ 198.39  
.E5 :0622:/ 198.22/ 198.25/ 197.74/ 197.11  
.E6 :0623:/ 197.02/ 197.02/ 196.42

:  
:ST JOSEPH MO - MISSOURI RIVER HSA - EAX  
:FLOOD STAGE 17.0 FCST ISSUANCE STAGE 13.5

:  
:LATEST STAGE 23.7 FT AT 0030Z ON 0619  
.ER SJSM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 23.7  
.E2 :0619:/ 24.7/ 25.6/ 26.3/ 26.5  
.E3 :0620:/ 26.6/ 26.7/ 26.7/ 26.8  
.E4 :0621:/ 26.8/ 26.8/ 26.7/ 26.7  
.E5 :0622:/ 26.6/ 26.5/ 26.5/ 26.5  
.E6 :0623:/ 26.4/ 26.4/ 26.4

.ER SJSM7 20110619 Z DC201106190130/DH06/QRIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 159.44  
.E2 :0619:/ 171.79/ 185.16/ 197.50/ 201.10  
.E3 :0620:/ 202.65/ 204.70/ 205.22/ 205.73  
.E4 :0621:/ 205.73/ 205.36/ 204.97/ 203.83  
.E5 :0622:/ 202.12/ 200.53/ 200.22/ 199.97  
.E6 :0623:/ 199.41/ 198.99/ 198.93

:  
:ATCHISON KS NO.1 - MISSOURI RIVER HSA - EAX  
:FLOOD STAGE 22.0 FCST ISSUANCE STAGE 20.0

:  
:LATEST STAGE 26.5 FT AT 2304Z ON 0618  
.ER ATCK1 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 26.6  
.E2 :0619:/ 26.9/ 27.0/ 27.7/ 28.3  
.E3 :0620:/ 28.6/ 28.8/ 28.8/ 28.9  
.E4 :0621:/ 29.0/ 29.0/ 29.0/ 29.0  
.E5 :0622:/ 28.9/ 28.9/ 28.8/ 28.7  
.E6 :0623:/ 28.7/ 28.7/ 28.7

:  
:LEAVENWORTH KS - MISSOURI RIVER HSA - EAX  
:FLOOD STAGE 20.0 FCST ISSUANCE STAGE 18.0

:  
:LATEST ESTIMATED STAGE 22.2 FT AT 0000Z ON 0619 .AR LEVK1 20110619 DH0000/HGIPX 22.20E  
.ER LEVK1 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 22.3  
.E2 :0619:/ 22.4/ 22.9/ 23.8/ 24.8  
.E3 :0620:/ 25.5/ 25.9/ 26.0/ 26.1  
.E4 :0621:/ 26.2/ 26.3/ 26.3/ 26.3

```

.E5 :0622:/      26.3/      26.2/      26.2/      26.1
.E6 :0623:/      26.0/      25.9/      25.9
:
:KANSAS CITY MO - MISSOURI RIVER      HSA - EAX
:FLOOD STAGE 32.0      FCST ISSUANCE STAGE 30.0
:
:LATEST STAGE 26.0 FT AT 0030Z ON 0619
.ER KCDM7      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      26.1
.E2 :0619:/      26.2/      26.3/      26.6/      27.3
.E3 :0620:/      28.3/      29.1/      29.6/      29.8
.E4 :0621:/      29.9/      29.9/      30.0/      30.0
.E5 :0622:/      29.9/      29.8/      29.7/      29.6
.E6 :0623:/      29.4/      29.3/      29.1/      29.0
.E7 :0624:/      29.0/      28.9/      28.9/      28.8
.E8 :0625:/      28.8/      28.7/      28.7
.ER KCDM7      20110619 Z DC201106190130/DH06/QRIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      168.73
.E2 :0619:/      170.05/      171.25/      174.83/      182.44
.E3 :0620:/      193.07/      202.91/      208.82/      211.28
.E4 :0621:/      212.51/      213.20/      213.51/      213.32
.E5 :0622:/      212.62/      211.52/      210.12/      208.51
.E6 :0623:/      206.76/      205.07/      203.60/      202.33
.E7 :0624:/      201.33/      200.70/      200.19/      199.66
.E8 :0625:/      199.18/      198.81/      198.45
:SIBLEY MO - MISSOURI RIVER      HSA - EAX
:FLOOD STAGE 22.0      FCST ISSUANCE STAGE 20.0
:
:LATEST STAGE 25.0 FT AT 2337Z ON 0618
.ER SBEM7      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      25.0
.E2 :0619:/      25.1/      25.2/      25.4/      25.7
.E3 :0620:/      26.3/      26.9/      27.4/      27.7
.E4 :0621:/      27.9/      27.9/      28.0/      28.0
.E5 :0622:/      28.0/      27.9/      27.8/      27.7
.E6 :0623:/      27.6/      27.5/      27.4
:
:NAPOLEON MO - MISSOURI RIVER      HSA - EAX
:FLOOD STAGE 17.0      FCST ISSUANCE STAGE 15.0
:
:LATEST STAGE 21.8 FT AT 0030Z ON 0619
.ER NAPM7      20110619 Z DC201106190130/DH06/HGIFF/DIH6
:QPF FCST      12Z      18Z      0Z      6Z
.E1 :0618:      ::      ::      /      22.0
.E2 :0619:/      22.1/      22.2/      22.3/      22.7
.E3 :0620:/      23.4/      24.1/      24.7/      25.0
.E4 :0621:/      25.2/      25.2/      25.2/      25.3
.E5 :0622:/      25.2/      25.2/      25.1/      25.0
.E6 :0623:/      24.9/      24.8/      24.6
:
:WAVERLY MO - MISSOURI RIVER      HSA - EAX
:FLOOD STAGE 20.0      FCST ISSUANCE STAGE 18.0
:
:LATEST STAGE 24.7 FT AT 0030Z ON 0619

```

.ER WVYM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 24.8  
.E2 :0619:/ 24.8/ 24.9/ 25.0/ 25.2  
.E3 :0620:/ 25.5/ 26.0/ 26.5/ 27.0  
.E4 :0621:/ 27.4/ 27.6/ 27.8/ 27.9  
.E5 :0622:/ 27.9/ 27.9/ 27.8/ 27.8  
.E6 :0623:/ 27.7/ 27.6/ 27.5/ 27.4  
.E7 :0624:/ 27.3/ 27.2/ 27.1/ 27.1  
.E8 :0625:/ 27.0/ 27.0/ 26.9  
.ER WVYM7 20110619 Z DC201106190130/DH06/QRIF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 169.51  
.E2 :0619:/ 170.34/ 171.31/ 172.45/ 174.42  
.E3 :0620:/ 178.29/ 184.62/ 192.56/ 200.25  
.E4 :0621:/ 206.15/ 209.90/ 211.99/ 213.03  
.E5 :0622:/ 213.41/ 213.28/ 212.71/ 211.74  
.E6 :0623:/ 210.46/ 208.94/ 207.32/ 205.71  
.E7 :0624:/ 204.22/ 202.93/ 201.89/ 201.09  
.E8 :0625:/ 200.45/ 199.90/ 199.43

:  
:MIAMI MO - MISSOURI RIVER HSA - EAX  
:FLOOD STAGE 18.0 FCST ISSUANCE STAGE 16.0

:  
:LATEST STAGE 22.9 FT AT 2300Z ON 0618  
.ER MIAM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 23.0  
.E2 :0619:/ 23.1/ 23.1/ 23.2/ 23.3  
.E3 :0620:/ 23.5/ 23.9/ 24.4/ 24.9  
.E4 :0621:/ 25.3/ 25.6/ 25.9/ 26.1  
.E5 :0622:/ 26.2/ 26.3/ 26.3/ 26.3  
.E6 :0623:/ 26.2/ 26.1/ 26.1

:  
:GLASGOW MO - MISSOURI RIVER HSA - EAX  
:FLOOD STAGE 25.0 FCST ISSUANCE STAGE 23.0

:  
:LATEST STAGE 25.7 FT AT 0030Z ON 0619  
.ER GLZM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 25.7  
.E2 :0619:/ 25.8/ 25.9/ 26.1/ 26.3  
.E3 :0620:/ 26.4/ 26.6/ 26.7/ 27.0  
.E4 :0621:/ 27.3/ 27.7/ 28.1/ 28.4  
.E5 :0622:/ 28.6/ 28.8/ 28.8/ 28.8  
.E6 :0623:/ 28.8/ 28.8/ 28.7

:  
:BOONVILLE MO - MISSOURI RIVER HSA - EAX  
:FLOOD STAGE 21.0 FCST ISSUANCE STAGE 19.0

:  
:LATEST STAGE 21.8 FT AT 0030Z ON 0619  
.ER BOZM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 21.9  
.E2 :0619:/ 21.9/ 22.0/ 22.2/ 22.3  
.E3 :0620:/ 22.6/ 22.8/ 23.0/ 23.2  
.E4 :0621:/ 23.4/ 23.8/ 24.2/ 24.6

.E5 :0622:/ 25.0/ 25.3/ 25.5/ 25.7  
.E6 :0623:/ 25.7/ 25.7/ 25.7  
.ER BOZM7 20110619 Z DC201106190130/DH06/QRIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 175.89  
.E2 :0619:/ 176.45/ 177.37/ 178.92/ 180.93  
.E3 :0620:/ 183.32/ 185.77/ 188.03/ 190.19  
.E4 :0621:/ 193.01/ 197.35/ 202.28/ 207.58  
.E5 :0622:/ 212.42/ 216.28/ 219.11/ 220.79  
.E6 :0623:/ 221.46/ 221.41/ 220.86

:  
:JEFFERSON CITY MO - MISSOURI RIVER HSA - LSX  
:FLOOD STAGE 23.0 FCST ISSUANCE STAGE 21.0

:  
:LATEST STAGE 21.6 FT AT 0100Z ON 0619  
.ER JFFM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 21.7  
.E2 :0619:/ 21.8/ 22.0/ 22.1/ 22.1  
.E3 :0620:/ 22.2/ 22.3/ 22.4/ 22.5  
.E4 :0621:/ 22.6/ 22.7/ 22.9/ 23.1  
.E5 :0622:/ 23.4/ 23.7/ 24.0/ 24.2  
.E6 :0623:/ 24.4/ 24.5/ 24.6

:  
:CHAMOIIS MO - MISSOURI RIVER HSA - LSX  
:FLOOD STAGE 17.0 FCST ISSUANCE STAGE 15.0

:  
:LATEST STAGE 17.2 FT AT 2000Z ON 0618  
.ER CMSM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 17.4  
.E2 :0619:/ 17.4/ 17.5/ 17.5/ 17.5  
.E3 :0620:/ 17.5/ 17.5/ 17.5/ 17.6  
.E4 :0621:/ 17.7/ 17.9/ 18.0/ 18.1  
.E5 :0622:/ 18.3/ 18.6/ 18.9/ 19.2  
.E6 :0623:/ 19.5/ 19.7/ 19.9

:  
:GASCONADE MO - MISSOURI RIVER HSA - LSX  
:FLOOD STAGE 22.0 FCST ISSUANCE STAGE 20.0

:  
:LATEST ESTIMATED STAGE 23.6 FT AT 0000Z ON 0619 .AR GSCM7 20110619 DH0000/HGIPX 23.60E  
.ER GSCM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 23.7  
.E2 :0619:/ 23.7/ 23.8/ 23.9/ 24.0  
.E3 :0620:/ 24.0/ 23.9/ 23.9/ 23.9  
.E4 :0621:/ 24.0/ 24.1/ 24.2/ 24.3  
.E5 :0622:/ 24.4/ 24.6/ 24.9/ 25.1  
.E6 :0623:/ 25.4/ 25.6/ 25.8

:  
:HERMANN MO - MISSOURI RIVER HSA - LSX  
:FLOOD STAGE 21.0 FCST ISSUANCE STAGE 19.0

:  
:LATEST STAGE 21.3 FT AT 0030Z ON 0619  
.ER HRNM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: / 21.4

.E2 :0619:/	21.5/	21.6/	21.7/	21.8
.E3 :0620:/	21.8/	21.8/	21.9/	21.9
.E4 :0621:/	22.0/	22.0/	22.1/	22.2
.E5 :0622:/	22.3/	22.5/	22.7/	22.9
.E6 :0623:/	23.1/	23.3/	23.5/	23.7
.E7 :0624:/	23.7/	23.8/	23.8/	23.8
.E8 :0625:/	23.7/	23.6/	23.5	

.ER HRNM7 20110619 Z DC201106190130/DH06/QRIF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: :: / 203.81  
.E2 :0619:/ 204.82/ 206.19/ 207.77/ 208.93  
.E3 :0620:/ 209.58/ 209.89/ 210.10/ 210.45  
.E4 :0621:/ 211.36/ 212.62/ 213.80/ 215.00  
.E5 :0622:/ 216.60/ 218.87/ 221.77/ 224.90  
.E6 :0623:/ 228.00/ 230.96/ 233.67/ 235.76  
.E7 :0624:/ 237.11/ 237.84/ 238.07/ 237.75  
.E8 :0625:/ 236.90/ 235.63/ 234.08

:  
:WASHINGTON MO - MISSOURI RIVER HSA - LSX  
:FLOOD STAGE 20.0 FCST ISSUANCE STAGE 18.0  
:

:LATEST STAGE 18.0 FT AT 0045Z ON 0619  
.ER WHGM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: :: / 18.0  
.E2 :0619:/ 18.1/ 18.1/ 18.2/ 18.2  
.E3 :0620:/ 18.3/ 18.3/ 18.3/ 18.3  
.E4 :0621:/ 18.3/ 18.3/ 18.3/ 18.3  
.E5 :0622:/ 18.4/ 18.5/ 18.6/ 18.7  
.E6 :0623:/ 18.8/ 19.0/ 19.2

:  
:ST CHARLES MO 1E - MISSOURI RIVER HSA - LSX  
:FLOOD STAGE 25.0 FCST ISSUANCE STAGE 23.0  
:

:LATEST STAGE 24.6 FT AT 0100Z ON 0619  
.ER SCLM7 20110619 Z DC201106190130/DH06/HGIFF/DIH6  
:QPF FCST 12Z 18Z 0Z 6Z  
.E1 :0618: :: :: / 24.6  
.E2 :0619:/ 24.6/ 24.5/ 24.5/ 24.5  
.E3 :0620:/ 24.5/ 24.5/ 24.5/ 24.5  
.E4 :0621:/ 24.4/ 24.4/ 24.4/ 24.4  
.E5 :0622:/ 24.4/ 24.5/ 24.5/ 24.6  
.E6 :0623:/ 24.7/ 24.8/ 24.9

:\*\*\*\*\*

:COMMENT

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:  
:  
:  
:  
:  
:\$\$  
:wao  
:...END of MESSAGE...

**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Saturday, June 18, 2011 8:31 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** RE: Updated Flood presentation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,  
The presentation has been updated on the external web. Also, I forgot to mention that I added Kevin's elevation and storage plots to the web (right under the flood presentation).  
Mike

-----Original Message-----  
**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 18, 2011 7:55 PM  
**To:** [REDACTED] NWD02  
**Subject:** Updated Flood presentation (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] - the updated flood presentation is on the network in the Flood 2011 directory: 2011 Flood 18-June update.pptx

Thanks,  
Jody

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE



**NWO**

---

**From:** [REDACTED] NWD02  
**Sent:** Saturday, June 18, 2011 7:19 PM  
**To:** Farmer, Monique L NWO  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: Information Needed for press kits tomorrow (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Monique,

1. [REDACTED] recently updated the statistics and she made several extra copies. You may be able to find them on her desk. Otherwise, they are posted to the web site at:  
<http://www.nwd-mr.usace.army.mil/rcc/projdata/projdata.html>
2. I'm sure we have copies of the Master Manual comments (probably in the admin record) but I'm not sure if we could get that by 11 am tomorrow. Also, it would likely be a lot of material. It might be easier to see if Rose has some sort of summary of the comments.
3. [REDACTED] told me that he gave Paul some talking points recently on the unregulated (without system) flows.

-----Original Message-----

**From:** Farmer, Monique L NWO  
**Sent:** Saturday, June 18, 2011 6:45 PM  
**To:** [REDACTED] NWD02  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Information Needed for press kits tomorrow (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED]  
Could you help me track down the following information for tomorrow? Need by 11 a.m. if possible.

5 copies of the statistics for 1967-2010.  
1 copy of the public comments from the Master Manual public meetings Preliminary estimations of what would have happened this spring and summer had the reservoir system not been in place.

Thanks in advance,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

**[REDACTED] NWO**

---

**From:** Farmer, Monique L NWO  
**Sent:** Saturday, June 18, 2011 6:45 PM  
**To:** [REDACTED] NWD02  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Information Needed for press kits tomorrow (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

**[REDACTED]**  
Could you help me track down the following information for tomorrow? Need by 11 a.m. if possible.

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Thanks in advance,

Monique Farmer  
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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

**From:** [REDACTED] NWO  
**Sent:** Saturday, June 18, 2011 6:33 PM  
**To:** DLL-CENWO-EOC CMT-ALL  
**Cc:** CENWD-EOC NWD; [REDACTED] NWO; Hutson, Marc B COL MIL USA  
USARNORTH; Earl, William W MAJ MIL USA USARNORTH; [REDACTED] HQ02; [REDACTED]  
[REDACTED] M SAW  
**Subject:** Flood Update #94 (UNCLASSIFIED)  
**Attachments:** MR\_Levee\_Freeboard\_061811.pdf; dailybull6-18-11.pdf; mainstembull6-18-11.pdf; Missouri  
River Basin Water Management Situation Report 6-18-11.docx; TempOutlook\_18Jun11.xls;  
Observed24hr\_Precip.jpg; Day1QPF.GIF; Day2QPF.GIF; Day3QPF.GIF; Day4\_5QPF.GIF;  
Day1\_5QPF.GIF; Levee Sit Rep - 18 June 2011.docx

Classification: UNCLASSIFIED

Caveats: FOUO

**\*\*EMERGENCY OPERATIONS\*\***

**1. Situation:**

The eastern half of Montana continues to see heavy rainfall. On Friday, locally heavy rainfall amounts fell across northeast Montana with the heaviest rainfall reports across Sheridan County with 3.3" reported near Dagmar and Medicine Lake. Additional heavy totals included 2.5" near Reserve, 2.2" near Whitetail, 1.44" at Wolf Point, and 1.15" at Glasgow. 0.25" to 0.75" general rains fell across parts of North Dakota, Nebraska, Kansas and Missouri. Locally higher amounts were embedded in these rains, with 2" near Scribner, NE, 1.62" at Fremont, NE, 2.25" near Emporia Kansas, and 2.42" at McPherson, Kansas. See attached. The 5-day quantitative precipitation forecast shows areas of South Dakota and Western Nebraska experiencing up to 4" of precipitation through June 23.

A coordination meeting with Council Bluffs, IA and County personnel was held today. The meeting went well and the path forward was outlined.

**2. Weather:**

**2.a. Future Precipitation:**

**Future Precipitation:**

The Day 1 QPF (from 700 hours Saturday to 700 hours Sunday): Thunderstorms were ongoing Saturday morning and were showing signs of strengthening near a frontal boundary in northwest Iowa. Scattered 0.25 to 0.50 inch rains are forecast for parts of Montana and the western High Plains. 0.25 to 0.75 inch rains are expected from western Iowa into southeast Nebraska, eastern Kansas, and Missouri. Locally heavier amounts are possible with the thunderstorms. Some of the thunderstorms may be severe; isolated in Nebraska and Iowa, and especially for parts of Kansas and Missouri. See attached.

The Day 2 QPF (from 700 hours Sunday to 700 hours Monday): Sunday, surface low pressure deepens in the lee of the Rockies and a surface warm front lifts into northern Kansas. Meanwhile, the low level flow backs and increases drawing deep moisture northward. Widespread steady rainfall of 1 to 2 inches will develop across parts of western and central Nebraska north into the western halves of the Dakotas into eastern Montana. Locally heavy 2-3+ inch rains are possible with this intense storm system. Some of these rains may result in flash flooding due to the locally saturated soils. Some of the thunderstorms may be severe across the Missouri River Basin and especially for parts of Nebraska and Kansas. See attached.

The Day 3 QPF (from 700 hours Monday to 700 hours Tuesday): The area of low pressure will move across the Dakotas and Nebraska with additional widespread rains. Widespread steady 1 to 2 inch rains are forecast with locally 2-3+ inch rains across a large part of the Missouri

River Basin. Some of these rains may result in flash flooding due to the locally saturated soils. Some of the thunderstorms may be severe with especially for parts of eastern Nebraska, eastern Kansas, Iowa and northwest Missouri. Outlook: The storm system continues to produce widespread rainfall Tuesday during the day across parts of the eastern portion of the Missouri River Basin. See attached.

2.b Temperature forecast:

Temperatures: Below normal temperatures (4 to 14 degrees) are expected for much of the Missouri River Basin today through Tuesday. Near or above normal temperatures return for Wednesday through Friday. See attached.

Winds Impacting Fort Peck, Williston, Garrison, and Oahe: At Fort Peck, breezy southwest winds will diminish this afternoon and evening and become light and variable Sunday morning. At Williston southwest winds will remain breezy at 15 to 25 mph during the day, then become light southeast at 10 mph or less tonight and early Sunday. The winds at Garrison, North Dakota and Oahe, South Dakota will be from the southeast at 15 to 25 mph, decreasing to 5 to 15 mph through Sunday morning.

3. Hydro Status:

3.a. River (Flood Stage/Current Stage/Forecast/Date of Peak: Peak Stage) Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/17 Pool Elev: 2252.2 ft-msl

24-hr change: 0.0'

6/17 Ave Inflow: 67,000 cfs

6/17 Ave Release: 65,600 cfs

6/18 Scheduled Release: 65,000 cfs

Garrison Dam (ND)

6/17 Pool Elev: 1853.8 ft-msl

24-hr change: 0.0'

6/17 Ave Inflow: 148,000 cfs

6/17 Ave Release: 148,600 cfs

6/18 Scheduled Release: 150,000 cfs

Oahe Dam (SD)

6/17 Pool Elev: 1618.7 ft-msl

24-hr change: 0.1'

6/17 Ave Inflow: 156,000 cfs

6/17 Ave Release: 150,500 cfs

6/18 Scheduled Release: 155,000 cfs

Big Bend Dam (SD)

6/17 Pool Elev: 1419.7 ft-msl

24-hr change: 0.0'

6/17 Ave Inflow: 150,000 cfs

6/17 Ave Release: 148,600 cfs

6/18 Scheduled Release: 155,000 cfs

Fort Randall Dam (SD)

6/17 Pool Elev: 1364.3 ft-msl

24-hr change: 0.1'

6/17 Ave Inflow: 163,000 cfs

6/17 Ave Release: 143,200 cfs

6/18 Scheduled Release: 143,000 cfs

Gavins Point Dam (NE-SD)

6/17 Pool Elev: 1207.8 ft-msl

24-hr change: 0.1'

6/17 Ave Inflow: 152,000 cfs

6/17 Ave Release: 150,300 cfs

6/18 Scheduled Release: 150,000 cfs

3.b. Reservoirs:

Tributary Reservoirs:

Pipestem Reservoir (ND) fell 0.16' to elevation 1483.5 ft-msl. Inflows are near 150 cfs and releases are 600 cfs. 62.0% of the flood pool is occupied.

Jamestown Reservoir (ND) fell 0.15' yesterday to elevation 1444.05 ft-msl. Inflows are approximately 100 cfs and releases are 1,200 cfs. The combined Jamestown/Pipestem release is approximately 1,800 cfs. 40.0% of the flood pool is occupied.

Heart Butte (ND) Reservoir fell 0.23 ft yesterday with 5.2% of its flood control pool occupied. Pactola (SD) dropped 0.3 ft yesterday with 2.2% of the flood pool occupied. Shadehill (SD) fell 0.04 ft yesterday with 2.7% of the flood pool occupied.

Yellowtail (MT) rose 0.49 ft to elevation 3636.0 ft-msl with inflows of 18,200 cfs and releases of 15,400 cfs. 90.9% of its multipurpose pool is occupied.

Tiber (MT) rose 0.5 ft to elevation 3004.75 ft-msl. Inflows were 6,050 cfs and releases are 752 cfs as the USBR stores water to help reduce inflows to Fort Peck. 57.3% of its flood pool is occupied.

Clark Canyon (MT) rose 0.41 ft to elevation 5550.1 ft-msl with inflows of 1,395 cfs and releases of 290 cfs as the USBR stores water to help reduce inflows to Fort Peck. 26.4% of its flood control pool is occupied.

Canyon Ferry (MT) rose 0.85 ft to elevation 3794.18 ft-msl with inflows of 30,050 cfs and releases of 15,900 cfs. After Canyon Ferry inflows have peaked, 100 kaf of flood storage in Canyon Ferry will be filled. 95.1% of its multipurpose pool is occupied.

Glendo (WY) rose 0.04 ft to elevation 4638.7 ft-msl with inflows of 8,380 cfs and releases of 7,644 cfs. 17.3% of its flood control pool is occupied.

Missouri River Mainstem Reservoirs: (Water Management SITREP is attached) Following is a link to the Mainstem regulation forecast. Refresh to obtain the most recent copy if you keep this link open. <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>. Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Montana

- \* Yellowstone River at Forsyth/10.0/10.77/peaking/
- \* Yellowstone River at Miles City/13.0/13.4/peaking/
- \* Yellowstone River at Glendive/53.5/52.27/rising/Jun 18: 52.4'
- \* Yellowstone River near Sidney/19.0/16.8/rising/Jun 19: 17.6'
  
- \* Gallatin River near Logan/8.0/8.16/receding/Jun 22: 9.3'
  
- \* Missouri River near Toston/10.5/10.79/receding/Jun 22: 11.3'
- \* Missouri River near Wolf Point/13.0/14.07/steady/Jun 20: 14.3'

- \* Missouri River near Culbertson/19.0/17.03/steady/Jun 20: 17.2'
- \* Milk River at Nashua/20.0/24.75/receding/Jun 20: 25.5'

#### Wyoming

- \* North Platte River at Saratoga/8.5/10.0/slight rise/steady and then falling
- \* North Platte River nr Sinclair/9.0/11/rising/Jun 21: 11.4'
- \* Laramie River at Laramie/5.0/5.09/steady/Jun 22: 5.5'

#### North Dakota

- \* Missouri River at Williston/22/30.13/steady/Jun 20: 30.4'
- \* Missouri River at Bismarck/16.0/18.72/rising/Jun 19: 19.0'
- \* James River at Jamestown/12.0/11.57 (1,850 cfs)/steady/

#### South Dakota

- \* Missouri River at Pierre/13.0/18.94/steady/
- \* Missouri River near Greenwood/30.0/38.21'/steady/
- \* Missouri River near Gayville/55.0/56.22/slow rise/

#### Nebraska

- \* North Platte River near Mitchell/7.5/9.27/slight rise/June 21: 9.66
- \* North Platte River at North Platte/6.0/7.54/steady/
- \* Missouri River at Sioux City/30.0/33.5/steady/Jun 19: 33.6'
- \* Missouri River at Decatur/35.0/37.88/steady/Jun 19: 38.1'
- \* Missouri River near Blair/26.5/31.72/steady/Jun 19: 31.7'
- \* Missouri River at Omaha/29.0/33.52/steady/Jun 19: 33.5'
- \* Missouri River at NE City/18.0/26.1/steady/Jun 19: 26.1'
- \* Missouri River at Brownville/33.0/42.1/rising/Jun 19: 42.3'
- \* Missouri River at Rulo/17.0/25.26/rising/Jun 20: 25.9'

#### 4. Emergency Operations:

##### 4.a.1 Nebraska

Winnebago Tribe, Macy, NE - Technical assistance provided to Tribal members and Thurston County regarding a potential access road.

##### 4.a.2 Montana:

Roosevelt County Wolf Point and Poplar, MT providing technical assistance; Joel Ames is continuing to work with the Tribes to address their concerns.

Ft. Peck Dam - Twenty-four hour surveillance continues on the dam and the spillway. Water surface and scour depth data along spillway wing walls obtained 17 Jun 2011 by USGS. Along the right wing wall the water surface was 2034 feet, with a ground elevation of 2009 feet (approximately 80-feet from the spillway exit). Along the left wing wall the water surface was 2036 feet, with a ground elevation of 2006 feet (approximately 120-feet from the spillway exit). Measurements closer to the spillway exit were not taken due to safety concerns. No other Significant Dam Safety Issues

##### 4.a.3 North Dakota

Williston, ND - A new boil on the filter berm began pushing material yesterday. Crew ringed the boil. Materials were still being moved. Crew attempted to choke off the boil with spalls and some finer material. Their efforts were successful and the boil began flowing clearer. One of the older boils began to move material late last night. Similar actions will be taken to try to reduce the movement of material. We are going to try and get more sand delivered to the sand berm area. Consideration is being given to extending the sand berm to cover some pin boil activity adjacent to the berm.

Garrison Dam - Regulatory tunnel discharges were increased from 60,000 to 75,000 cfs at 20:00. Splashing and rolling waves draining off the structural platform on the west side of tunnel 8 began headcutting the scour hole slopes as it drains off the platform. This is not considered to be a significant dams safety concern, but recommend that spalls be placed in the resultant scoured area to minimize maintenance.

Fort Yates, ND - Standing Rock Sioux Tribe (SRST): South side work is 15% complete.

#### 4.a.4 South Dakota

Fort Randall Dam: The repair of concrete slab spalling near the spillway wall was not completed yesterday as reported it will be completed 18 June 2011, the work is being completed by project personnel. Partial flow has been diverted back to the spillway (on the opposite side of where work is being completed) until patches cure. Then full spillway flows will be restored. No additional significant dam safety issues to report.

#### 4.a.5 Wyoming: NSTR

#### 4.a.6 Iowa/Missouri

Pottawattamie County: A meeting was held at 900hrs at the Council Bluffs incident command post. USACE received a brief on the city's secondary flood protection plan.

Mills County: Direct Assistance on the L611-614 has begun. Contractor has begun working on layer 1 of the inverted filter blanket. Rain slowed the progress on the haul road today.

The L601 piggy-back levee to repair damages was completed last night.

Harrison County: The County has filled the remainder of its pump requests with state assets (4-8" and 2-16" Pumps).

Omaha Tribe Access Road: A contract for the construction of a temporary access road to maintain critical infrastructure will be awarded tonight or tomorrow.

Hamburg Ditch 6: The ring levee at the upper end of Segment 1 is nearly complete. The placement of cohesive fill to address boils at areas that were running clear began yesterday. Weather slowed progress preventing access to boil sites and other low areas. Sand for areas that were flowing material continues to be stockpiled. Efforts continue to pump rainwater and dry the site. These areas are still a big concern. Water is at Elevation 916 this morning.

#### 4.a.7 Missouri River Levee Surveillance Missouri River Levee Systems (Federal Levees):

Multiple teams comprised of Omaha District and out-of-District staffs continue to coordinate with local sponsors on any issues/concerns they may have, as well as conduct surveillance on levee conditions. Seepage areas/boils have been observed along the levees. Teams have been providing assistance to Sponsors when seepage areas/boils and other actionable items are observed.

Omaha-Missouri River RB: A sewer line and manhole collapsed, causing what resembled a sink-hole. The city closed the entire sewer line in that location and filled the depression with rock. The National Guard and city personnel were given levee surveillance training.

L624-627/614/611-Mosquito Creek and Upper Pony Creek: The seepage area near the Narrows Park is demonstrating additional seepage.

L611/614-MoRiver LB & Upper Pony Creek Ditch LB: Placement of an inverted filter was delayed due to truck access issues caused by rains. During the time of road repairs, all material was rerouted to Hamburg, IA.



L601-Watkins Ditch RB: There is seepage at the toe of the levee with a sediment fan. The sponsor is aware and plans to sandbag the area.

L601/594: Maintenance, again, appears to be lacking from the sponsors on this levee. Little progress had been made by the evening of June 17 on repairs to a hole repair in the levee. Seepage on the landside continues to be a problem, and the sponsor has been informed. The Waubonsie Creek railroad closure structure is complete.

L594/575-BW,PV,Waubonsie: A boil field was identified and marked at the confluence of Waubonsie Creek and the Missouri River. Seepage is saturating the berm and, in some areas, it is wet near the landside toe. The sponsor has been informed of both issues.

L575-BW,McKissock, Buchanan, Atchison, Hamburg: USACE is working with sponsors to ensure they are implementing surveillance schedules.

Wet seepage areas were found around large sections of the levee. Initial construction of a secondary levee behind drainage structure at the north end to control leakage/seepage is complete. Seepage is beginning to come under I-29. Work continues for installation on seepage blankets/berms. Weather conditions have slowed work progress and boil activity continues to increase. Three feet of freeboard remains on the levee. On the Nishnabotna R side, there are low points that still need to be raised but the levee appears to be dry with no boiling. There are concerns that the placement of plastic on the north side of the levee may not have been adequate. Wave action is beginning to cause erosion and the Corps is aware and taking actions towards correction.

R573-MO River RB: Provided levee surveillance training to OPPD and provided guidance for a setting a proper surveillance schedule.

R562-Peru: The river has risen a foot

R548- MO River and Little Nemaha: The sponsor placed 1500 sandbags in vault to cut off most of flow caused by a malfunctioning sluice gate that can't be closed.

The flap gates on Whiskey Run are still leaking. The sponsor has placed rock against the gate and thinks flow will soon stop. At Jarvis Creek, the sponsor inserted an inflatable bladder on the landside of the levee in an attempt to seal a leaking flap gate. A USACE field crew advised against the measure, warning that that it would pressurize the pipe. The bladder remains in place. The USACE crew noted and photographed the operation.

#### 4.b Equipment:

##### Sandbags:

Issued: 14,637,000

On Hand: 6,9233,500

Projected requests: 6,500,000

##### 3' HESCO:

Issued: 8,200 LF

On Hand: 9,000 LF

Projected requests: 10,000 LF

##### 4' HESCO:

Issued: 66,070 LF

On Hand: 21,200 LF

Projected requests: 25,000 LF

##### Poly Rolls:

Issued: 2,836 rolls

On Hand: 1,987 rolls

Projected requests: 1,500 rolls

Pumps:

Issued: 48

On Hand-Serviceable: 3

On Hand: 4

Projected requests: 20

Additional Notes:

1 pump in maintenance for parts/repair

4 USACE pumps due in June 20

1,350 2,000 lb slingbags on-hand

6,420 35x35x35 heavybags on-hand

5,500 LF HESCO due in June 18

4 rolls geotextile (16" wide, 500 sqft) on-hand

4.c Funding:

\* Total Code 200 Funding received to date for this event: \$47,412,425

\* Total Code 200 Funding waiting to be received for this event: \$0

\* Total Code 200 Funding revoked to date for this event: \$3,834,000

\* Class 219 - Emergency Operations - Direct Assistance - \$250,000 - WAD and FAD received 3/14/2011

\* Class 219 - Emergency Operations - Direct Assistance - \$3.825M - WAD received 03/15/11. FAD received 03/16/11.

\* Class 219 - Additional Funds Request on 24 March - \$231,425 - WAD and FAD received 03/24/11.

\* Class 219 - Emergency Operations - Direct Assistance - \$2.5M revoked - 4/13/11

\* Class 219 - Emergency Operations - Direct Assistance - \$100k revoked - 4/22/11

\* Class 210 - Response Operations - Alabama Tornadoes - \$56k - MIPR - 4/30/11 - received \$45k on 4/30/11

\* Class 210 - Response Operations - Alabama Tornadoes - \$25k - Request and received for EOC Operations and deployments on 4/30/11

\* Class 210 - Response Operations - Alabama Tornadoes - \$14k revoked - 05/02/2011

\* Class 210 - Response Operations - Alabama Tornadoes - \$10k revoked - 05/03/2011

\* Class 200 - Emergency Operations - Response Operations - \$500,000 - WAD and FAD received on 05/25/11

\* Class 200 - Emergency Operations - Response Operations - \$750,000 - WAD and FAD received on 05/26/11

\* Class 200 - Emergency Operations - Response Operations - \$5,000,000 - FAD received 05/27/11

\* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - FAD received 05/27/11

\* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/27/11 - WAD received for \$2M received on 05/31/11 - verbal received on 06/04/11 for \$1M

\* Class 200 - Emergency Operations - Response Operations - \$10,000,000 - request sent 05/28/11 - WAD received on received 05/28/11

\* Class 200 - Emergency Operations - Response Operations - \$3,000,000 - request sent 05/31/11 - WAD received 06/01/11

\* Class 200 - Emergency Operations - Response Operations - \$6,500,000 - request sent 06/01/11 - WAD for \$3M received 06/02/011 - verbal received on 06/04/11 for \$3.5M

\* Class 200 - Emergency Operations - Response Operations - \$1,500,000 - request sent 06/03/11 - verbal received 06/03/11

\* Class 200 - Emergency Operations - Response Operations - \$1,000,000 - request sent 06/03/11 - verbal received 06/03/11 - WAD received 06/06/11

\* Class 200 - Emergency Operations - Response Operations - \$500,000 - request sent 06/04/11 - verbal received 06/04/11

\* Class 200 - Emergency Operations - Response Operations - \$2,000,000 - request sent 06/05/11 - verbal received 06/05/11

- \* Class 200 - Emergency Operations - Response Operations - \$400,000 - request sent 06/06/11 - verbal received 06/07/11
- \* Class 200 - Emergency Operations - Response Operations - \$50,000 - received 06/08/11
- \* Class 200 - Emergency Operations - Response Operations - \$980,000 - request sent 06/08/11 - WAD received 06/09/11
- \* Class 200 - Emergency Operations - Response Operations - \$750,000 - request sent 06/09/11 - WAD received 06/10/11
- \* Class 21M - Emergency Operations - Response Operations - \$210k revoke request sent 06/10/11
- \* Class 21M - Emergency Operations - Response Operations - \$1,000,000 revoke request sent 06/17/11
- \* Class 200 - Emergency Operations - Response Operations - \$750,000 - request sent 06/17/11 - verbal received 06/18/11
- \* Total Code 500 Funding received to date: \$827,904
- \* Class 520 Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/2/11.
- \* Class 52A Additional Request for Funding - Advance Measures - Technical assistance - \$100K. WAD and FAD received on 3/10/11.
- \* Class 520 Additional Request for Funding - Advance Measures - Technical assistance - \$101,640. WAD and FAD received on 3/24/11.
- \* Class 519 Funding - Advance Measures - Direct Assistance - \$376,264. WAD and FAD received on 3/28/11.
- \* Class 520 Funding - Advance Measures - Technical assistance - \$110k - FAD received on 05/12/11.
- \* Class 510 Funding - Advance Measures - Direct assistance - \$40k - FAD received on 05/26/11

Daily Labor Burn Rate: \$137,500  
 Daily Contract Burn Rate: \$420,000  
 Combined Daily Burn Rate: \$557,500

#### 4.d Number of Personnel Supporting EOC Operations:

Working in field: 60  
 Working in District: 50  
 Outside District: 1

#### 5.a EOC Activation - Level IV - 24 hour Activation (Shifts: 0700-1930)

████████████████████  
 Chief, Readiness Branch  
 U.S. Army Corps of Engineers - Omaha District  
 1616 Capitol Ave., Ste 9000  
 Omaha, NE 68102  
 ██████████ Office  
 ██████████ Blackberry  
 ██████████@usace.army.mil

Classification: UNCLASSIFIED  
 Caveats: FOUO



# US Army Corps of Engineers®

## Current Stage NWS 5-Day Forecast Peak

Gage	As of: 09:00	Stage	Date
Williston	30.13	30.4	20-Jun
Omaha	33.48	33.4	18-Jun
Nebraska City	26.12	26.10	18-Jun
Brownville	41.86	42	19-Jun
Rulo	25.11	25.6	21-Jun

## Freeboard

> 5'
2' - 5'
< 2'
Breached

6/18/2011 9:00

Missouri River Federal Levee	Stream Gage Location	Likely Range of Stage with normal precipitation (ft)	Overtop Stage Previous Estimate	Overtop Stage FreeBoard Survey	Current FreeBoard (feet)	FreeBoard w/ NWS 5-Day Forecast (feet)
Williston Levee	Williston	30	n/a	32	1.9	1.6
Omaha Levee D/S 275	Omaha	34	40	38	4.5	4.6
Omaha Flood Wall	Omaha	34	41	41	7.5	7.6
Council Bluffs Ind Levee	Omaha	34	n/a	36.8	3.3	3.4
Council Bluffs Fed Levee	Omaha	34	40	40.2	6.7	6.8
L627	Omaha	34	36	38	4.5	4.6
L624	Omaha	34	35	38	4.5	4.6
L611-614	Omaha	34	35	38	4.5	4.6
R616	Omaha	34	35	36.6	3.1	3.2
R613	Omaha	34	35	36.8	3.3	3.4
L601	Nebraska City	27	25.4	29	2.9	2.9
L594	Nebraska City	27	26	30	3.9	3.9
L575	Nebraska City	27	27	27	BREACHED	BREACHED
R573	Nebraska City	27	27	28.2	2.1	2.1
R562	Nebraska City	27	25.5	28.7	2.6	2.6
R548	Brownville	43	44	43.9	2.0	1.9
L550	Brownville	43	42.8	43.7	1.8	1.7
L536	Brownville	43	44.3	43.9	2.0	1.9
R520	Rulo	25.5	27	30	4.9	4.4

\*NOTE: FreeBoard survey values may not include all low areas. Overtopping could occur at stages approximately 1 foot below surveyed value.



**US Army Corps  
of Engineers**  
Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem and Tributary Reservoir Bulletin

Project Data Date/Time: 06/18/11 12:00 AM

Bulletin Updated: 6/18/11 2:16 PM

Project	Project Information				Current Data					Occupied Storage		
	Elevations (ft msl)		Storage		Elevation (ft msl)	Dly Elev. Change	Storage (ac-ft)	Inflow (dsf)	Release (dsf)	MP (%)	FC (ac-ft)	FC (%)
	MP	FC	MP	FC								
MRR - Missouri River Mainstem Projects												
*Please note Mainstem and USBR data is calculated manually and will populate before 12:00 p.m.												
Fort Peck	2234.0	2250.0	14,788,000	18,463,000	2252.25	0.00	19,018,000	67,000	65,600	100.0	4,230,000	116.7
Garrison	1837.5	1854.0	18,109,625	23,820,730	1853.76	0.02	23,711,000	148,000	148,600	100.0	5,601,375	98.1
Oahe	1607.5	1620.0	18,834,035	23,136,960	1618.68	0.07	22,621,000	156,000	150,500	100.0	3,786,965	88.0
Big Bend	1420.0	1423.0	1,621,484	1,798,614	1419.73	0.03	1,622,000	150,000	148,600	100.0	516	0.3
Fort Randall	1350.0	1375.0	3,124,368	5,418,186	1364.27	0.11	4,360,000	163,000	143,200	100.0	1,235,632	53.9
Gavins Point	1204.5	1210.0	320,971	469,928	1207.80	0.11	388,000	152,000	150,300	100.0	67,029	45.0
System Totals							71,720,000					
NWO - USBR Section 7 Projects												
Tiber	2993.0	3012.5	925,649	1,328,723	3004.75	0.50	1,156,687	6,061	751	100.0	231,038	57.2
Clark Canyon	5546.1	5560.4	174,367	253,442	5550.08	0.41	195,223	1,395	288	100.0	20,856	26.4
Canyon Ferry	3797.0	3800.0	1,891,888	1,992,977	3794.18	0.85	1,798,441	30,053	15,903	95.1	0	0.0
Boysen	4725.0	4732.2	741,594	892,226	4706.29	0.35	443,266	7,857	5,749	59.8	0	0.0
Buffalo Bill	5393.5	5393.5	646,565	646,565	5353.75	0.27	360,297	6,538	5,690	55.7	-	-
Yellowtail	3640.0	3657.0	1,070,000	1,328,000	3636.00	0.49	972,768	18,168	15,394	90.9	0	0.0
Jamestown	1429.8	1454.0	31,510	221,000	1444.05	-0.15	107,369	351	1,195	100.0	75,859	40.0
Heart Butte	2064.4	2094.5	67,000	214,000	2066.72	-0.23	74,649	484	890	100.0	7,649	5.2
Keyhole	4099.3	4111.5	194,000	334,000	4097.76	-0.02	174,506	-90	0	90.0	0	0.0
Pactola	4580.2	4621.5	56,000	99,000	4581.33	-0.30	56,931	167	0	100.0	931	2.2
Shadehill	2271.9	2302.0	120,000	350,000	2273.18	-0.04	126,155	404	509	100.0	6,155	2.7
Glendo	4635.0	4653.0	518,000	790,000	4638.70	0.04	564,936			100.0	46,936	17.3
NWO - USACE Tributary Projects												
Bowman-Haley	2754.8	2777.0	18,765	91,482	2755.89	-0.08	20,720	191	216	100.0	1,955	2.7
Pipestem	1442.5	1496.3	8,944	142,107	1483.50	-0.16	91,476	-270	603	100.0	82,532	82.9
Chatfield	5432.0	5500.0	27,428	234,207	5430.99	0.02	25,997	16	11	94.8	0	0.0
Cherry Creek	5550.0	5598.0	12,805	133,134	5549.94	-0.01	12,749	0	15	99.6	0	0.0
Bear Creek	5558.0	5635.5	1,882	30,586	5558.34	0.03	1,917	16	20	100.0	35	0.1
Papio #11	1121.0	1142.0	3,054	16,907	1121.36	0.01	3,195	4	2	100.0	141	1.0
Papio #16	1104.0	1121.0	1,211	4,782	1104.03	-0.02	1,215	-1	0	100.0	4	0.1
Papio #18	1110.0	1128.2	2,916	10,512	1092.20	0.00	262	0	0	9.0	0	0.0
Papio #20	1095.8	1113.1	2,536	8,611	1095.88	-0.01	2,548	-2	0	100.0	12	0.2
Cottonwood	3875.0	3936.0	655	8,385	3856.50	0.00	0	0	0	0.0	0	0.0
Cold Brook	3585.0	3651.4	520	7,200	3582.89	0.00	445	0	0	85.6	0	0.0
Lake Audubon	1847.0	1847.0	323,690	323,690	1849.4	0	INFLOW AND OUTFLOW NOT CALCULATED					
Lake Pocasse	1617.0	1617.0	11,000	11,000	POOL ELEVATION READ MONTHLY BY PROJECT OFFICE							
Salt Creek #02	1335.0	1350.0	1,100	4,957	1333.80	-0.02	915	-2	0	83.2	0	0.0
Salt Creek #04	1307.4	1322.5	2,531	9,660	1307.01	-0.01	2,409	-1	0	95.2	0	0.0
Salt Creek #08	1287.8	1302.0	1,780	8,375	1287.75	-0.99	1,766	-109	30	99.2	0	0.0
Salt Creek #09	1271.1	1285.0	1,451	5,864	1271.22	-0.02	1,474	0	2	100.0	23	0.5
Salt Creek #10	1244.9	1262.0	1,629	7,468	1245.20	-0.01	1,693	1	2	100.0	64	1.1
Salt Creek #12	1232.9	1252.0	1,808	9,415	1233.04	-0.01	1,837	-1	0	100.0	29	0.4
Salt Creek #13	1341.0	1355.0	2,161	7,182	1340.88	0.00	2,132	0	0	98.7	0	0.0
Salt Creek #14	1244.3	1263.5	7,500	27,597	1244.35	-0.01	7,534	-4	0	100.0	34	0.2
Salt Creek #17	1242.4	1266.0	783	6,628	1242.55	-0.03	826	-1	1	100.0	43	0.7
Salt Creek #18	1284.0	1311.0	25,088	96,759	1284.28	0.00	25,605	13	13	100.0	517	0.7



U.S. Army Corps  
of Engineers  
Omaha District

# U.S. Army Corps of Engineers, Omaha District

## Missouri River Basin

### Mainstem Reservoir Bulletin

Bulletin Updated: 6/18/11 2:15 PM

Project	Project Information					Current Data (as of 00:00)				Occupied Storage						
	Elevations (ft msl)		Storage Capacity (ac-ft)			Elevation (ft msl)	Dly Elev. Change	Total Occupied Storage (ac-ft)	Previous Day Avg.		Multi-Use		Annual FC		Exclusive (%)	
	Top of Multi-Use	Top of Annual FC	Top of Exclusive	Multiple Use	Annual FC				Exclusive	(ac-ft)	(%)	(ac-ft)	(%)			
TODAY																
Project Data Date/Time 6/18/2011																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2252.25	0.00	19,018,000	67,000	65,600	100.0	2,704,000	100.0	1,526,000	157.2
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.76	0.02	23,711,000	148,000	148,600	100.0	4,222,000	100.0	1,379,000	92.8
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.68	0.07	22,621,000	156,000	150,500	100.0	3,201,000	100.0	586,000	53.2
Big Bend	1420.0	1422.0	1423.0	117,000	117,000	60,000	1419.73	0.03	1,622,000	150,000	148,600	100.0	1,000	0.9	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1364.27	0.11	4,360,000	163,000	143,200	100.0	1,236,000	94.4	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.80	0.11	388,000	152,000	150,300	100.0	81,000	94.2	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			71,720,000				56,784,000		3,491,000	
YESTERDAY																
Project Data Date/Time 6/17/2011																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2252.25	-0.05	19,018,000	68,000	65,800	100.0	2,704,000	100.0	1,000,188	103.0
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.74	0.10	23,714,000	154,000	143,800	100.0	4,222,000	100.0	1,382,000	92.8
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.61	0.03	22,611,000	154,000	150,400	100.0	3,201,000	100.0	576,000	52.3
Big Bend	1420.0	1422.0	1423.0	117,000	117,000	60,000	1419.70	0.07	1,620,000	150,000	143,800	99.9	0	0.0	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1364.16	0.52	4,321,000	150,000	143,400	100.0	1,197,000	91.4	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1207.69	0.11	385,000	152,000	150,100	100.0	78,000	90.7	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			71,669,000				56,783,000		2,958,188	
DAM INFORMATION																
Surveillance Period Triggers			Record Pool Level		Design		Top of		RECENT ELEVATIONS							
Weekly	Daily	24 hour	Elev	Year	Dam Crest	Surcharge	Crest	Top of Gate	03:00		06:18	06:18	06:18	06:18	06:18	
Fort Peck (FP)	2246.0	2247.0		1975	2280.5	2256.1	2225.0	2250.0	2252.25		2252.25	2252.23	2252.21	2252.21	2252.21	
Garrison (GA)	1850.0	1854.0	1854.8	1975	1875.0	1858.5	1825.0	1854.0	1853.73		1853.91	1853.99	1853.87	1853.87	1853.86	
Oahe (OA)	1617.5	1618.7	1618.7	1995	1680.0	1644.4	1596.5	1620.0	1618.61		1618.56	1618.59	1618.59	1618.59	1618.56	
Big Bend (BB)	1422.0	1422.0	1423.0	1991	1440.0	1433.6	1385.0	1423.0	1419.73		1419.82	1419.68	1419.70	1419.70	1419.70	
Fort Randall (FR)	1365.0	1370.0	1372.0	1997	1395.0	1379.3	1346.0	1375.0	1364.29		1364.27	1364.27	1364.30	1364.30	1364.30	
Gavins Point (GP)	1210.0	1210.0	1210.7	1960	1234.0	1221.4	1180.0	1210.0	1207.80		1207.79	1207.79	1207.79	1207.79	1207.79	

## Missouri River Basin Water Management Situation Report – 6-18-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. The relatively high inflows that have been coming into Fort Peck and Garrison Reservoirs will likely continue. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at:

<http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/18/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	67.0	65.6	2250	2252.2	0.0
Garrison	148.0	148.6	1854	1853.8	0.0
Oahe	156.0	150.5	1620	1618.7	0.1
Big Bend	150.0	148.6	1423	1419.7	0.0
Fort Randall	163.0	143.2	1375	1364.3	0.1
Gavins Point	152.0	150.3	1210	1207.8	0.1

Based on the current level data for the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time.

**Table 2. Reservoir Storage Data (through 0000 hrs 6/18/11)**

<b>Reservoir</b>	<b>Current</b>	<b>Total</b>	<b>Remaining</b>	<b>Exclusive</b>	<b>% Excl Left</b>
	<b>kAF</b>	<b>kAF</b>	<b>kAF</b>	<b>kAF</b>	
Fort Peck	19,018	18,463	-555	971	-57
Garrison	23,711	23,821	110	1,489	7
Oahe	22,621	23,137	516	1,102	47
Big Bend	1,622	1,798	176	60	100
Fort Randall	4,360	5,418	1,058	985	100
Gavins Point	388	450	62	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Beginning today, releases from Oahe and Big Bend reservoirs will be increased to 160,000 cfs to gain storage space for future rainfall events affecting Fort Peck and Garrison reservoirs levels. The other reservoir releases are currently being maintained at their anticipated maximum releases. Full listing of the reservoir data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/18/11)**

<b>Reservoir</b>	<b>Yesterday</b>	<b>Forecast Today</b>	<b>7 days out 25 June</b>	<b>14 days out 02 July</b>	<b>Pre-2011 Record</b>
	<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>
Fort Peck	65.6	65	60	60	35
Garrison	148.6	150	150	150	65
Oahe	150.4	155	160	160	59
Big Bend	148.6	155	160	160	74
Fort Randall	143.2	143	148	148	67
Gavins Point	150.3	150	150	150	70

## River Conditions

Levees have been constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases move through their downstream reaches and inflows from the downstream reaches and localized precipitation joins these high releases. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.



**Table 4. Missouri River Stage Data for 6/18/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.7	20.6	mid-Jun
Pierre, SD	13	18.9	18.7	mid-Jun
Sioux City, IA	30	33.6	35-37	mid-Jun thru July
Decatur, NE	35	37.8	40-42	mid-Jun thru July
Omaha, NE	29	33.5	34-36	mid-Jun thru July
Nebraska City, NE	18	26.1	27-28+	mid-Jun thru July
St. Joseph, MO	17	23.4	27-32	mid-Jun thru July
Kansas City, MO	32	26.0	30-39	mid-Jun thru July
Waverly, MO	20	24.6	27-31	mid-Jun thru July
Boonville, MO	21	21.7	27-33	mid-Jun thru July
Hermann, MO	21	21.2	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. Increasing releases from Oahe Reservoir to 160,000 cfs will affect stages at Pierre, However, the stages at both cities are still about 3 feet below the constructed levee crests.

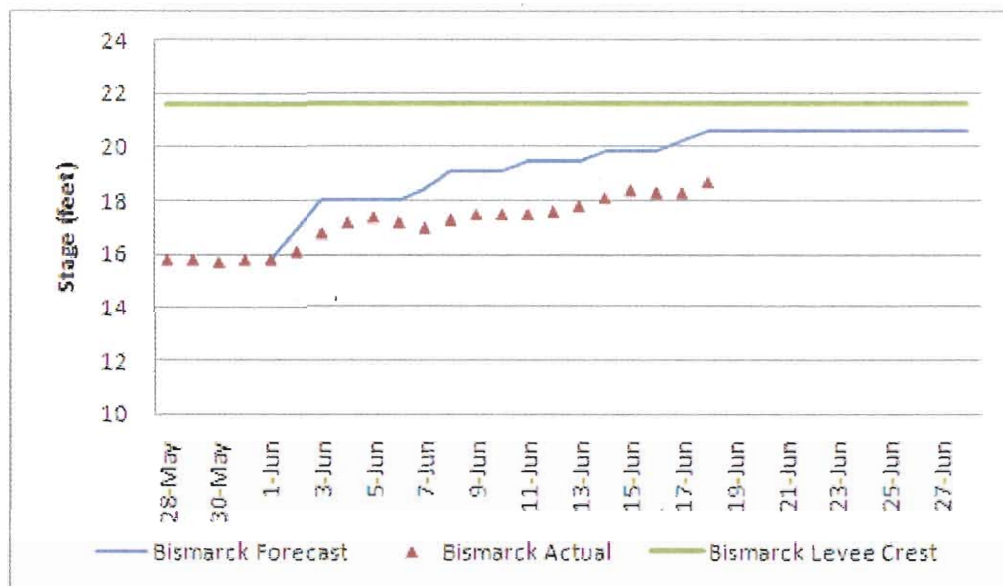


Figure 1. Missouri River stages at Bismarck, North Dakota.

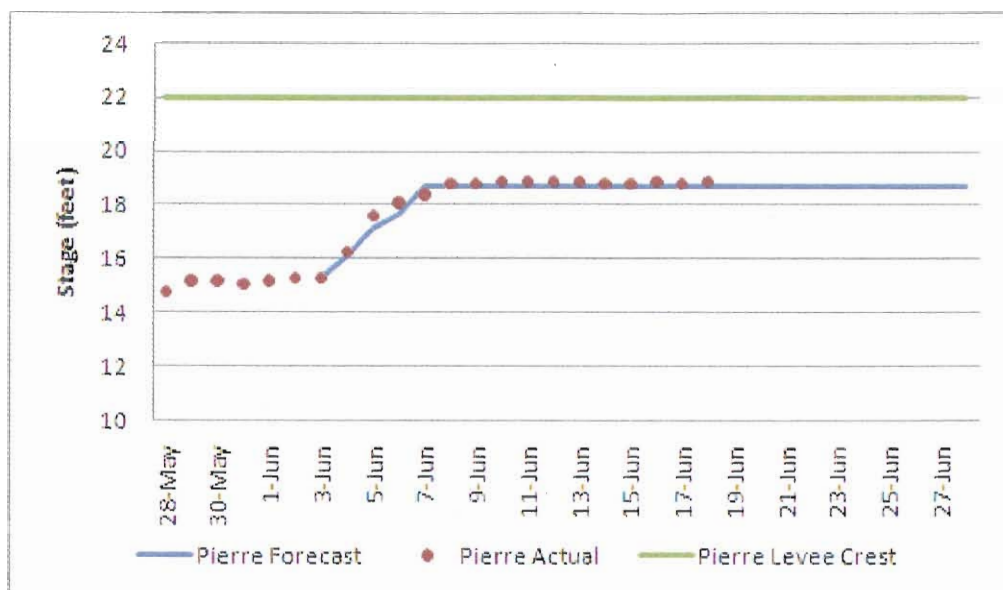


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread moderate to heavy rain is forecasted for much of the Missouri River Basin. Inflows from the heavier forecasted areas would drain into all reservoirs in the System. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

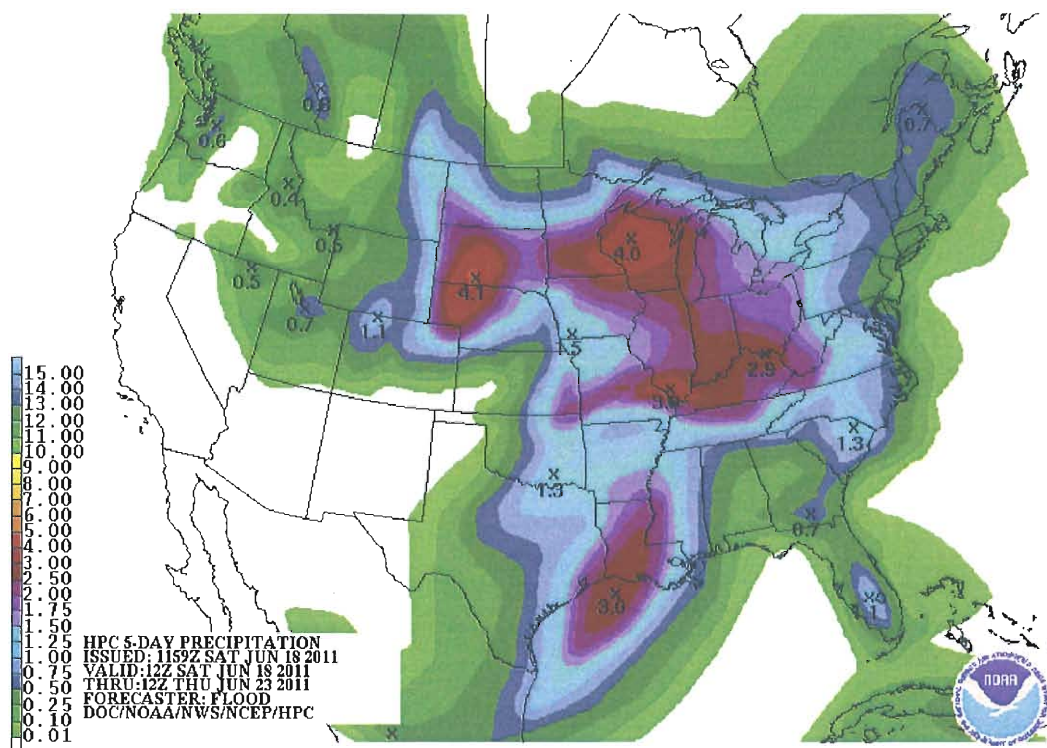
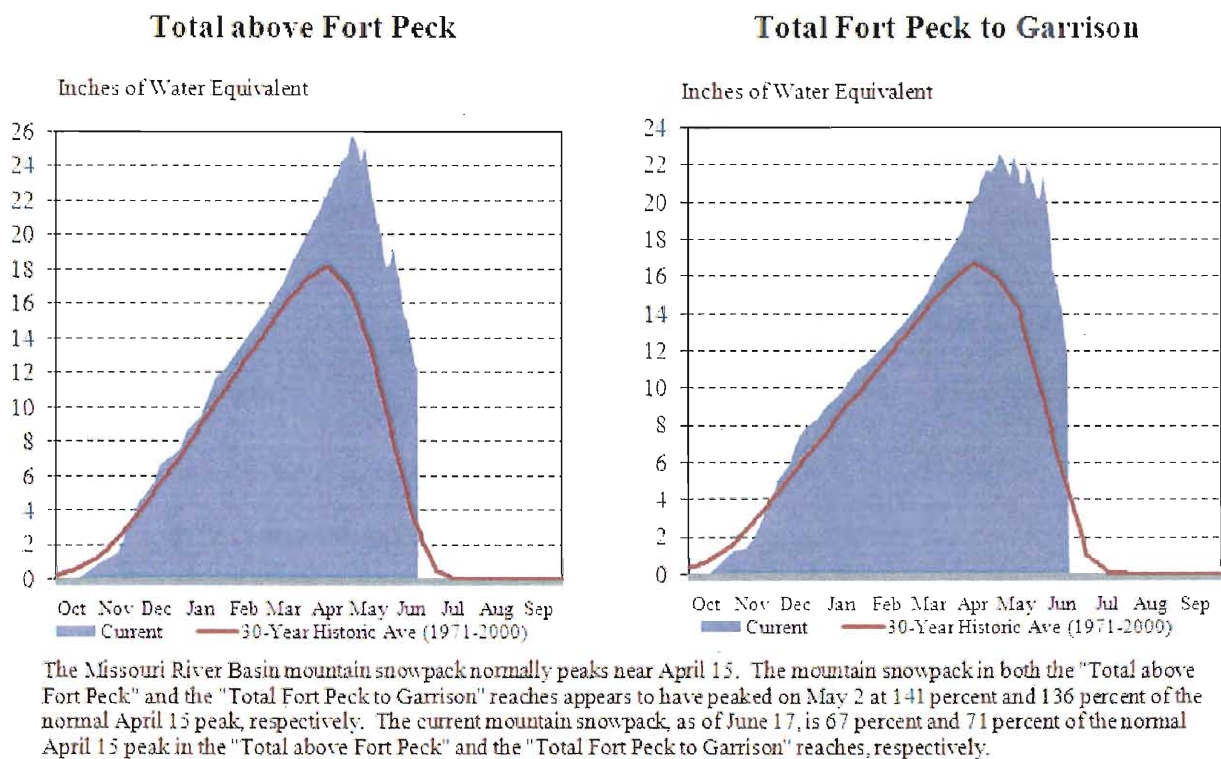


Figure 3. 5-day total QPF ending 0700 Thursday, June 23, 2011.



June 17, 2011

Provisional data. Subject to revision.

Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 17, 2011.

## Current Actions and Notable Information

Levee construction been completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. The most recent of these levees, the Hamburg levee, has also been completed. The failure of levee L-575 occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is now above the 2010 maximum.

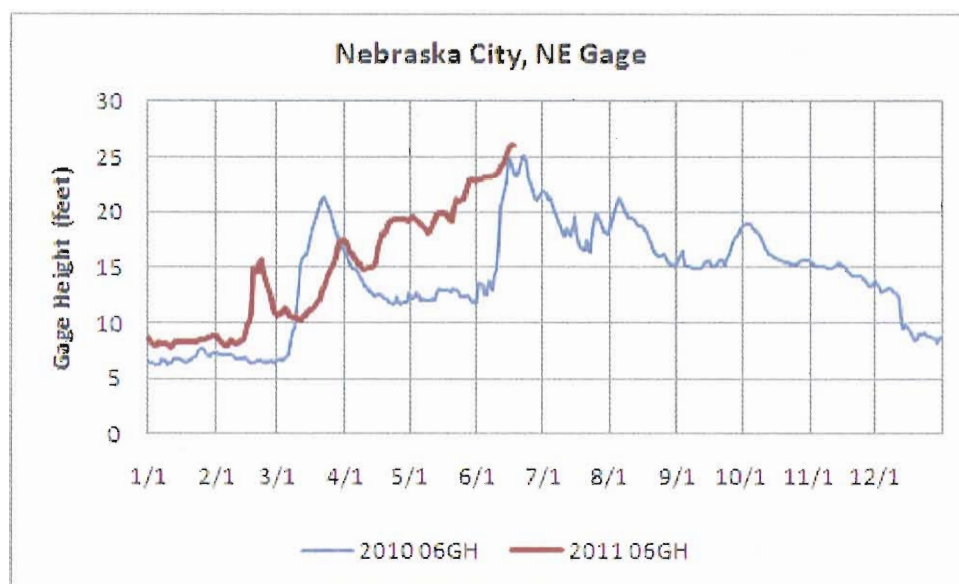


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri Monday, June 13. This location is across the river from Rulo, Nebraska. The gage plot for this location is shown below as Figure 6. Another factor, such as duration of water against the levee or back-to-back years with water against the levee appears to be playing a role in the failure of this levee as well as the levee near Hamburg.



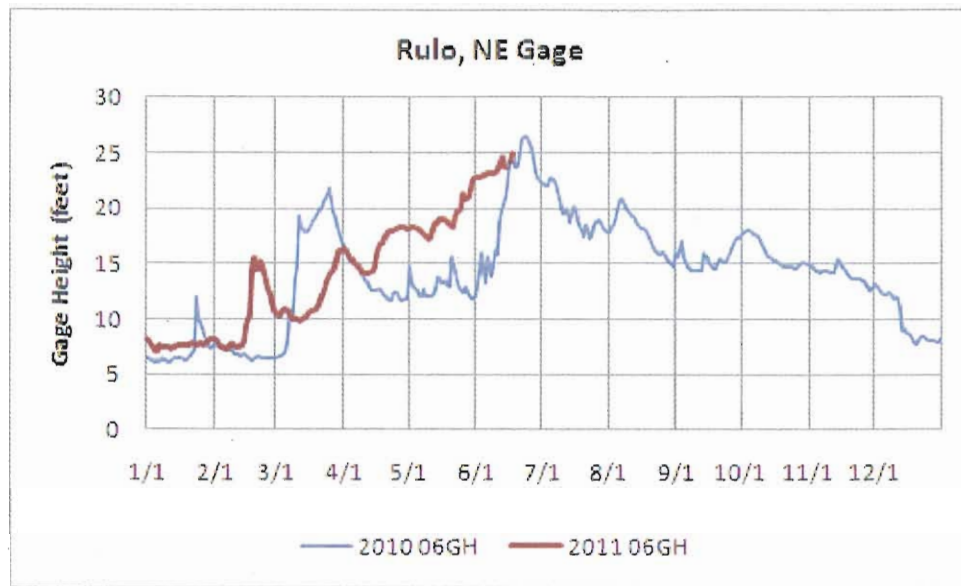


Figure 6. River stages at Rulo, Nebraska for 2010 and 2011.

Heavy rains fell over Eastern Montana and most of the lower basin between 0700 hours yesterday and today. Figure 7 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

NWS Central Region: Current 1-Day Observed Precipitation  
Valid at 6/18/2011 1200 UTC- Created 6/18/11 15:41 UTC

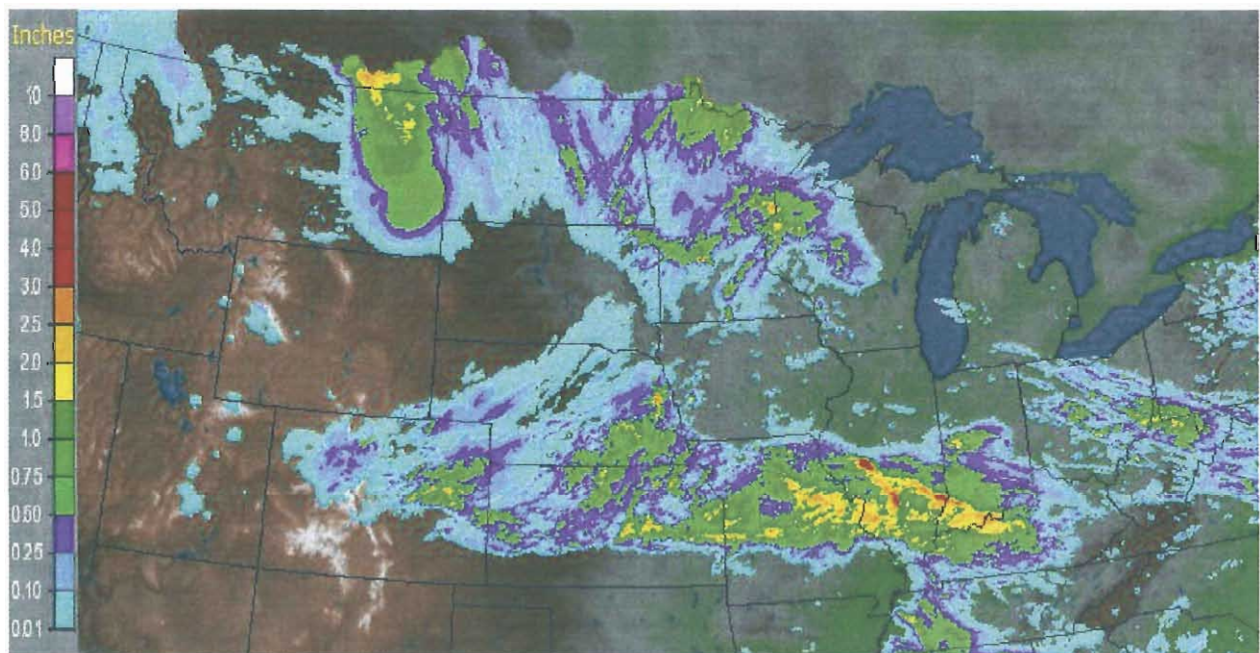
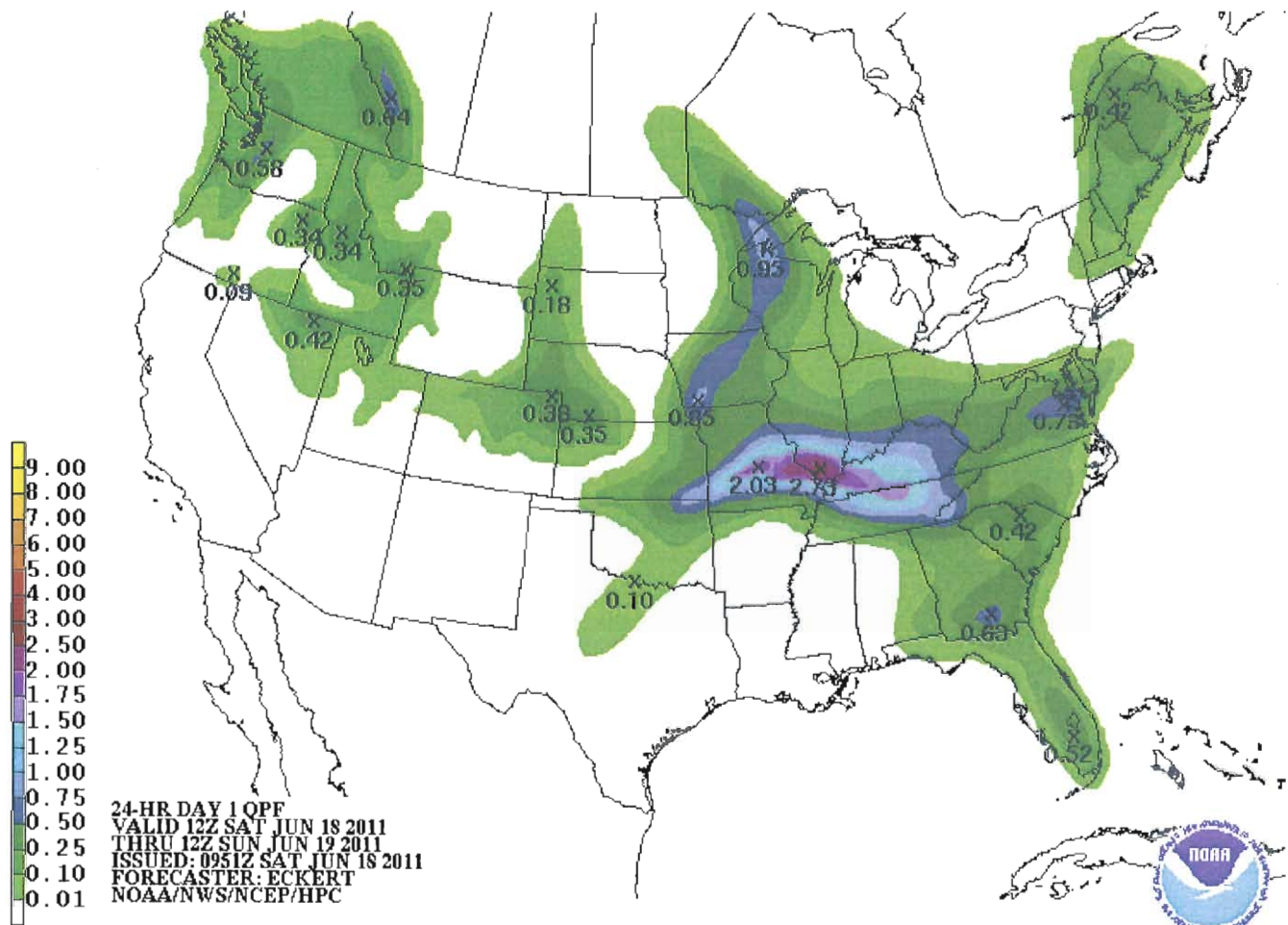
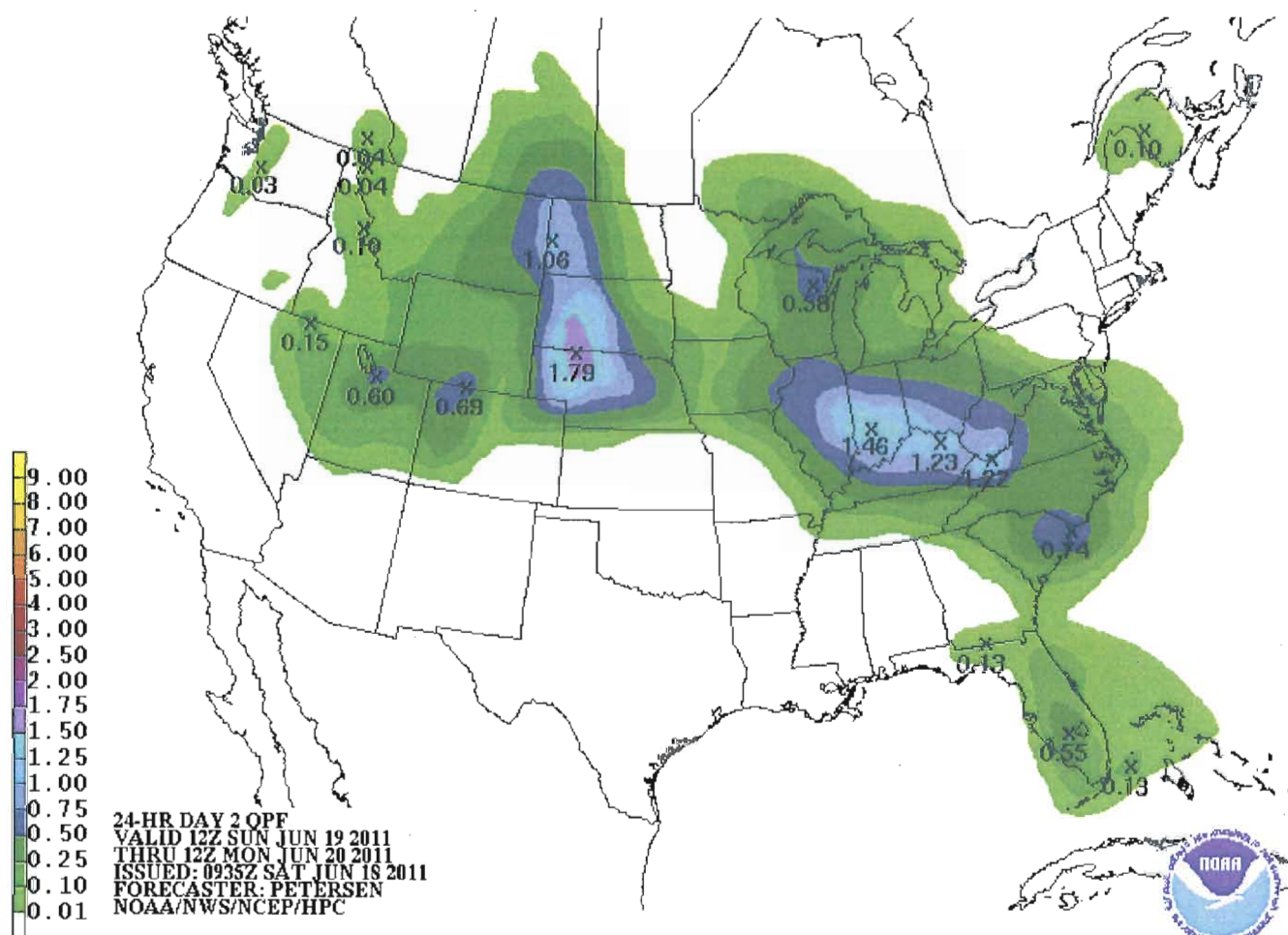
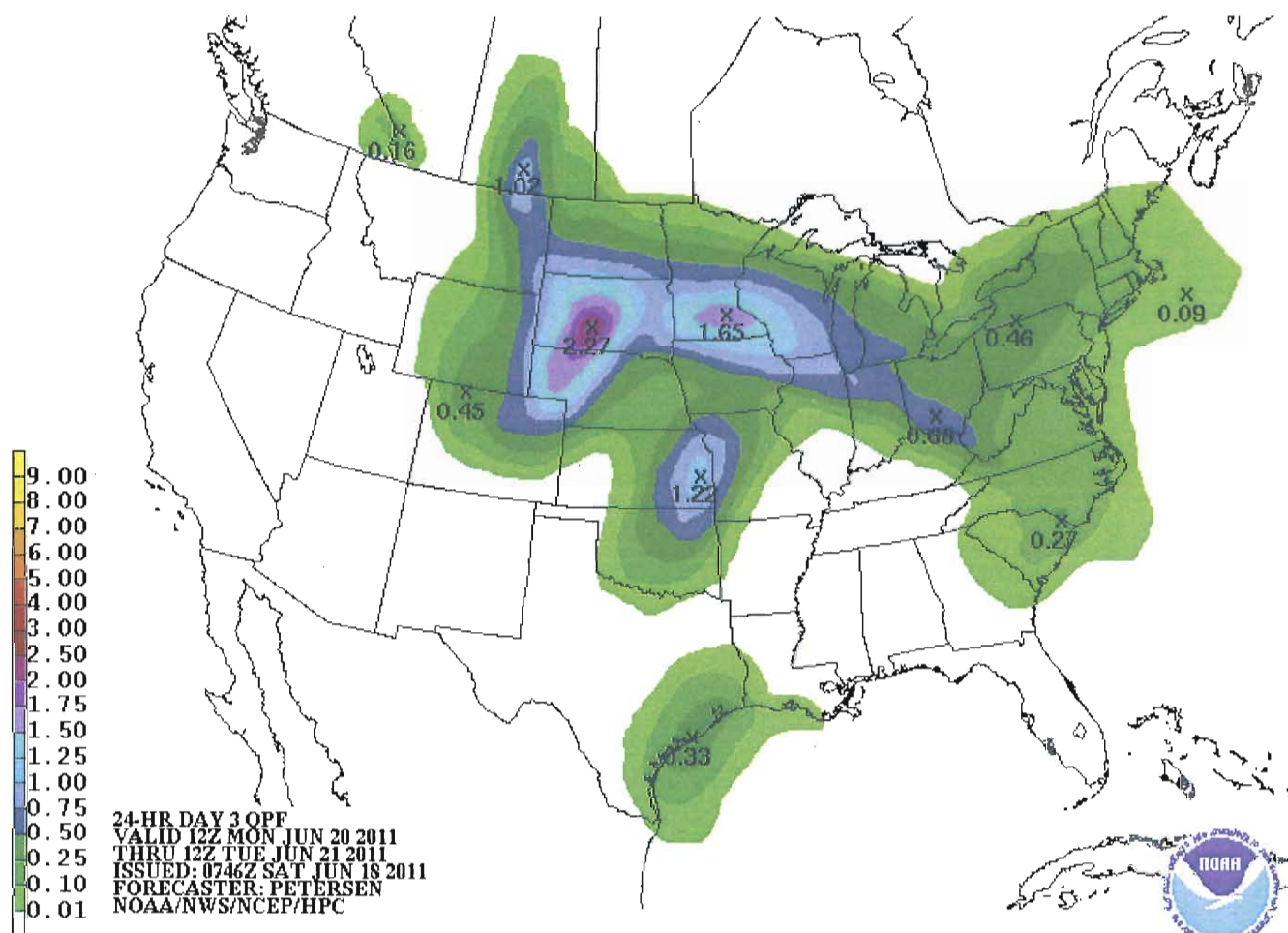


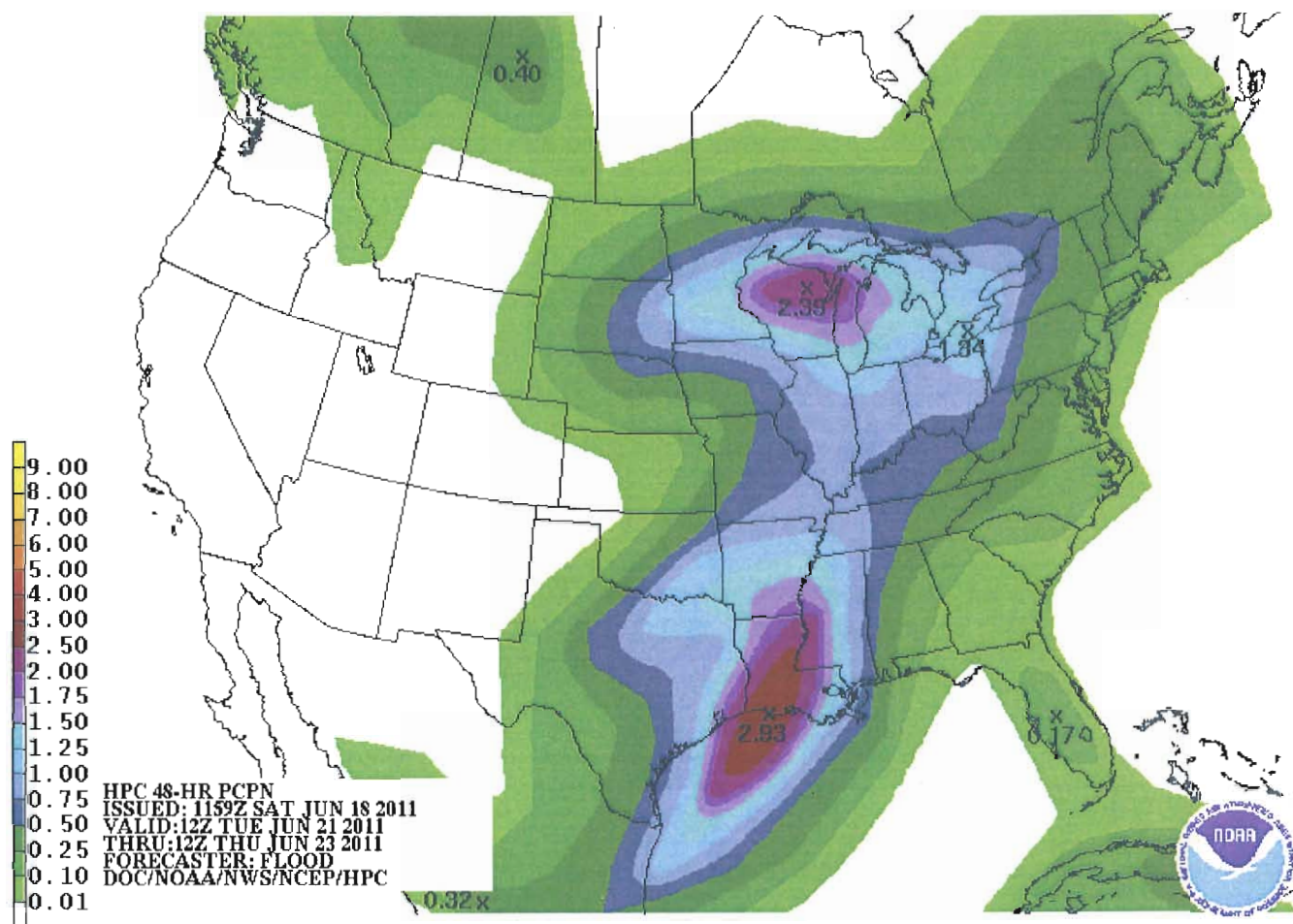
Figure 7. Rainfall on the Central Region of the United States for June 18, 2011.

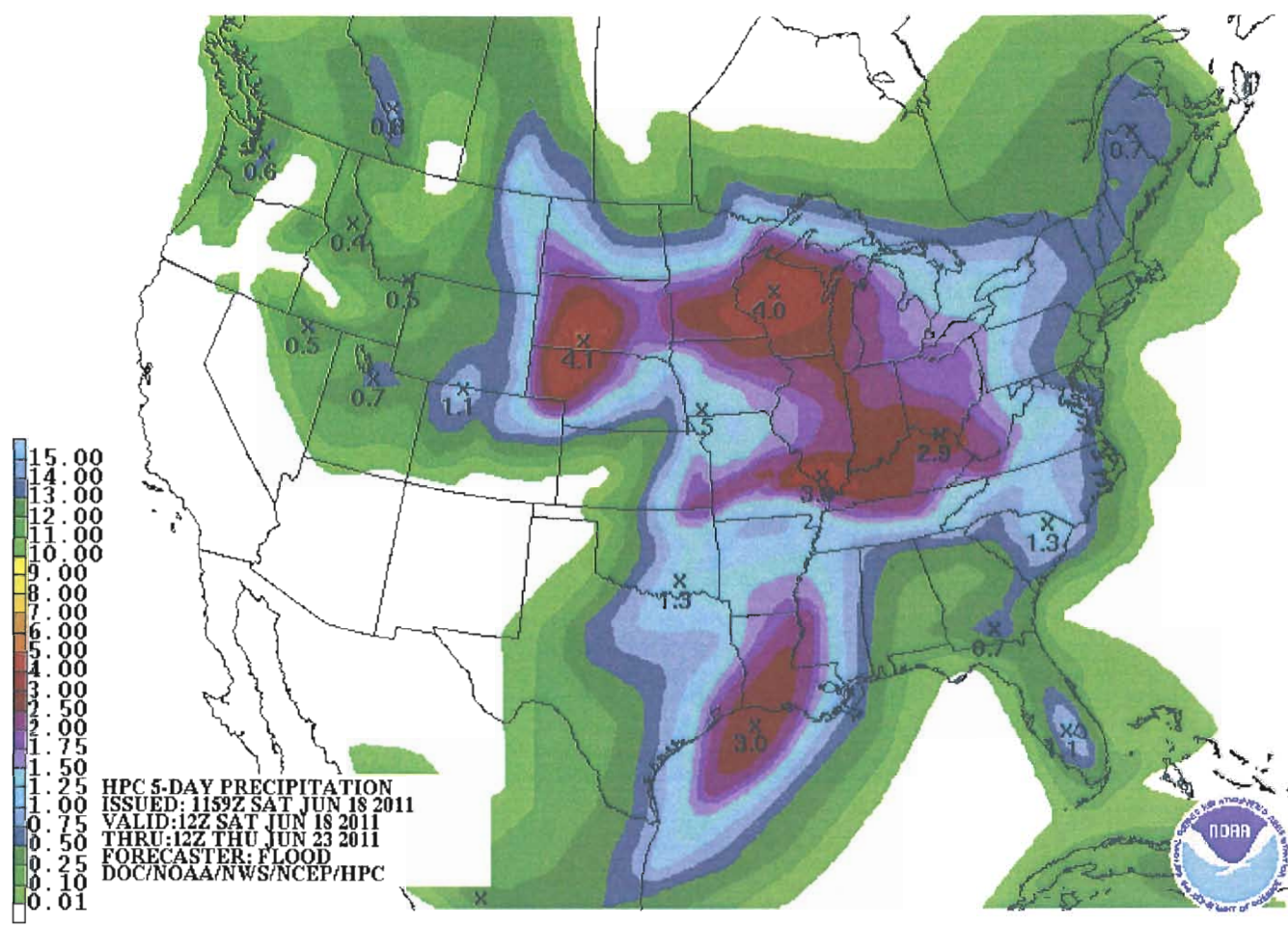








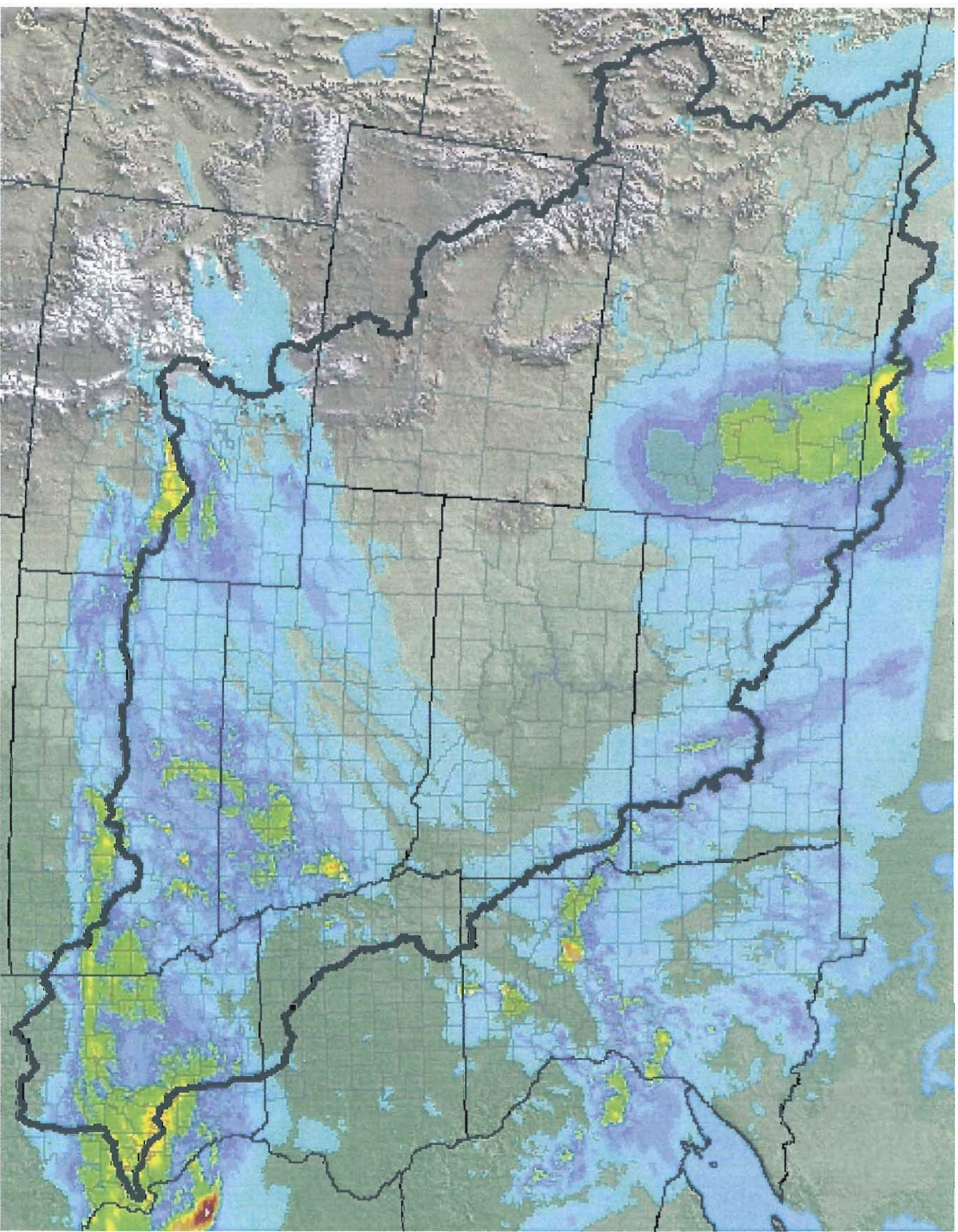




7 Day Temperature Forecasts (High/Low)						
17-Jun-11						
Location	Sat	Sun	Mon	Tue	Wed	Thu
	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun
Helena, MT	68/44	61/44	67/49	76/49	79/51	75/50
Livingston, MT	71/45	62/45	67/43	74/46	80/50	81/52
Billings, MT	77/49	69/50	70/50	78/53	84/55	85/57
West Yellowstone, MT	61/34	55/36	59/38	68/37	72/39	71/40
Cody, WY	71/46	61/45	63/47	70/48	77/51	80/52
Sheridan, WY	76/49	68/50	63/48	71/49	78/50	82/53
Casper, WY	75/49	69/47	60/47	70/47	79/49	84/51
Laramie, WY	67/43	67/42	60/41	64/43	72/44	78/48

Fri	Norm
24-Jun	Max/Min
69/NA	77/47
77/NA	77/47
85/NA	82/53
65/NA	NA/NA
77/NA	77/50
80/NA	80/48
85/NA	82/49
79/NA	74/44





# MBRFC 24-Hour Gage Biased Estimated Rainfall (inches)

Ending: 6/18/2011 at 7:00AM CDT

Created 6/18/2011 at 7:17 AM CDT

**NEBRASKA & IOWA  
LEVEE SYSTEM SIT REP  
Efforts through 1500 18 June 2011 (Saturday)**

**Missouri River Levee Systems (Federal Levees):** Multiple teams comprised of Omaha District and out-of-District staffs continue to coordinate with local sponsors on any issues/concerns they may have, as well as conduct surveillance on levee conditions. Seepage areas/boils have been observed along the levees. Teams have been providing assistance to Sponsors when seepage areas/boils and other actionable items are observed.

Summary of observations for noted period.

**Omaha-Missouri River RB:**

- A sewer line and manhole collapsed, causing what resembled a sink-hole. The city has closed the entire sewer line in that location and filled the depression with rock.
- Levee surveillance training was provided to the National Guard and city personnel

**L627-MO River LB & Indian Creek RB:**

Nothing to report

**L624-Mo River & Indian LB & Mosquito Creek RB:**

Nothing to report

**L624-627/614/611-Mosquito Creek and Upper Pony Creek:**

- The seepage area near the Narrows Park is demonstrating additional seepage.

**L611/614-MoRiver LB & Upper Pony Creek Ditch LB:**

- Inverted filter placement was delayed due to truck access issues caused by rains. During the time of road repairs, all material has been rerouted to Hamburg, IA

**L601-Watkins Ditch RB:**

- Seepage sighted at the toe of the levee with a sediment fan. Sponsor plans on sandbagging the area

**L601/594:**

- Maintenance, again, appears to be lacking from the sponsors on this levee
- Little progress had been made by the evening of June 17<sup>th</sup> on repairs to a hole repair in the levee
- Seepage on the landside continues to be a problem, and the sponsor has been informed
- The Waubonsie Creek railroad closure structure has been completed

**L594/575-BW,PV,Waubonsie:**

- A boil field was identified and marked at the confluence of Waubonsie Creek and the Missouri River
- Seepage is saturating the berm and, in some areas, it is wet near the landside toe
- The sponsor has been informed of both issues

**L575-BW,McKissock, Buchanan, Atchison, Hamburg:**

- Working with sponsors to make sure they are implementing surveillance schedules
- Wet seepage areas are found around large sections of the levee
- Initial construction of secondary levee completed behind drainage structure at the north end to control leakage/seepage
- Seepage is beginning to come under I-29
- Work to install seepage blankets/berms continues
  - Work was slowed due to poor weather, as the boil activity continued to increase
- 3 ft of freeboard left on the levee
- On the Nish R side, low points are yet to be raised, but the levee appears to be dry with no boiling
- There is concern that the placement of plastic on the north side of the levee may not have been adequate
  - Wave action is beginning to cause erosion
  - The Corps is aware and taking actions towards correction

**L550/561-Missouri River LB:**

Nothing to report

**L536/550-Turkey Creek:**

Nothing to report

**R616/613-MO River RB and Papillion Creek LB:**

Nothing to report

**R613-Platte LB and Papillion RB and MO River RB:**

Nothing to report

**Lake Waconda:**

Nothing to report

**R573-MO River RB:**

- Provided levee surveillance training to OPPD
- Advise was given on a proper surveillance schedule to the OPPD maintenance crew

**R562-Peru:**

- The river has risen a foot

**R548- MO River and Little Nemaha:**

- Sluice gate is malfunctioning and not closed. Sponsor placed 1500 sandbags in vault and cut off most of flow.
- Flap gates on Whiskey Run are still leaking. Rock has been placed against the gate and the sponsor thinks flow will soon come to a stop.
- At Jarvis Creek, the sponsor inserted an inflatable bladder on the landside of the levee to seal a leaking flap gate. They were informed by the Corps field crew that this would pressurize the pipe, and were advised not to do so. The sponsor chose not to act on the advice and kept the bladder on the landside. A note was made, and picture taken of the operation.

**R520-MO River RB:**

Nothing to report



## **Efforts through 1500 17 June 2011 (Friday)**

**Missouri River Levee Systems (Federal Levees):** Multiple teams comprised of Omaha District and out-of-District staffs continue to coordinate with local sponsors on any issues/concerns they may have, as well as conduct surveillance on levee conditions. Seepage areas/boils have been observed along the levees. Teams have been providing assistance to Sponsors when seepage areas/boils and other actionable items are observed.

Summary of observations for noted period.

### **Omaha-Missouri River RB:**

- Levee is in good condition
- Gatewell began leaking at a slow hydrant rate. Sponsor has repaired the problem
- City is placing an inverted filter over previous boil

### **L627-MO River LB & Indian Creek RB:**

- Corn has been planted at levee toe in an area of high velocity and has scour potential

### **L624-Mo River & Indian LB & Mosquito Creek RB:**

Nothing to report

### **L624-627/614/611-Mosquito Creek and Upper Pony Creek:**

- The city was constructing a road near the Narrows Park. They stopped construction on advice from the Corps because the construction was harmful to the integrity of the area.
- National Guardsmen are marking spots with the City and filling burrow holes
- The sinkhole near the pump station has been filled with granular material. The current plan is to plug and inspect the pipe. A bypass pump is being delivered.

### **L611/614-MoRiver LB & Upper Pony Creek Ditch LB:**

Nothing to report

### **L601-Watkins Ditch RB:**

- Seepage and boils are increasing. Sponsor is filling rodent holes with bentonite.
- The emergency contract has been let for piggyback berm. A suitable borrow site has been found and construction has begun.

### **L601/594:**

- Several large burrows discovered on both sides of the levee and possible caved in burrows on the crest of the levee
- Sponsor could not be reached but Mike Crecelius (Freemont County EM) was contacted and said he would contact the L594 sponsor with the recommendation to fill the burrows with bentonite
- An agreement between the sponsor and the railroad has been reached on responsibility for the closure structure. The railroad will cut the rails and the sponsor will build the sandbag closure.

**L594/575-BW,PV,Waubonsie:**

Nothing to report

**L575-BW,McKissock, Buchanan, Atchison, Hamburg:**

- L575 has approximately 3-3.5' of freeboard and is showing signs of loading
- Many sand boils are showing at the toe of the filter blanket bench in the area of the relief wells which sponsor is addressing
- Most relief wells are flowing strong but about 12 need to be cleaned out near river mile 562.5 at the toe of the seepage blanket. The sponsor has been notified.
- Construction of clay berm 100' from levee toe near Hwy 333 has begun
- The limits of the sand filter at the NW corner of the levee have been staked
- Hamburg levee construction continues
  - Plastic is being placed on levee face as water rises
  - Water appears to be at 914'
- Seepage occurring at I-29 overpass at the railroad closure. The city has pumps that can handle the seepage flow.

**L550/561-Missouri River LB:**

Nothing to report

**L536/550-Turkey Creek:**

Nothing to report

**R616/613-MO River RB and Papillion Creek LB:**

Nothing to report

**R613-Platte LB and Papillion RB and MO River RB:**

Nothing to report

**Lake Waconda:**

Nothing to report

**R573-MO River RB:**

Nothing to report

**R562-Peru:**

- The County is raising the levee at the downstream road crossing

**R548- MO River and Little Nemaha:**

- The sponsor is repairing the flap gates, placing rock against the flap gates to seal them and placing material on a low spot on the levee.

**R520-MO River RB:**

Nothing to report

**Omaha-Missouri River RB:**

Nothing to report

**L627-MO River LB & Indian Creek RB:**

- System is in relatively good shape but showing signs of flooding including seepage and pin boils
- Sink hole was identified at storm water pump station near levee tow (JTW057). Approximately 5'x7' and 4' deep around storm water pipe. Fix will be to grout around pipe and either grout or plug the pipe itself.
- Crews began road work on 25<sup>th</sup> St. at 1930hrs 15 June

**L624-Mo River & Indian LB & Mosquito Creek RB:**

Nothing to report

**L624-627/614/611-Mosquito Creek and Upper Pony Creek:**

Nothing to report

**L611/614-MoRiver LB & Upper Pony Creek Ditch LB:**

- Seepage and boils continue to increase
- Sponsor will ring large sand boils on June 16

**L601-Watkins Ditch RB:**

- The rock quarry initially identified as a borrow area for the hole through the levee at RM585 is unsuitable. A suitable replacement is currently being identified
- At RM585 water with medium hydrant flow was flowing through the levee. Two rodent holes on the riverside were identified as the source of the flow. These holes were plugged with 10 bags of bentonite and sandbagged for stabilization. The landside hole was ringed with ~120 sandbags. Flow dissipated to a trickle.
- By the end of the day on June 15 approval for a contracted fix was obtained.

**L601/594:**

Nothing to report

**L594/575-BW,PV,Waubonsie:**

Nothing to report

**L575-BW,McKissock, Buchanan, Atchison, Hamburg:**

- Water is currently at 914' and beginning to touch the toe of the Ditch #6 levee
  - I/29 overpass at BNSF closure is now complete
  - Material has been pushed up to an elevation 919 in most places.

- Diking District personnel deepened the notch they had made in the levee because the notch was not allowing sufficient overtopping of water.
- Diversion pipes (9 total) in Ditch 6 were opened to relieve flooding pressure

**L550/561-Missouri River LB:**

Nothing to report

**L536/550-Turkey Creek:**

Nothing to report

**R616/613-MO River RB and Papillion Creek LB:**

- Staff gage has raised by 0.5' since yesterday

**R613-Platte LB and Papillion RB and MO River RB:**

Nothing to report

**Lake Waconda:**

Nothing to report

**R573-MO River RB:**

Nothing to report

**R562-Peru:**

Nothing to report

**R548- MO River and Little Nemaha:**

Nothing to report

**R520-MO River RB:**

Nothing to report

**NEBRASKA & IOWA  
LEVEE SYSTEM SIT REP  
Efforts through 1500 14 June 2011 (Wednesday)**

**Missouri River Levee Systems (Federal Levees):** Multiple teams comprised of Omaha District and out-of-District staffs continue to coordinate with local sponsors on any issues/concerns they may have, as well as conduct surveillance on levee conditions. Seepage areas/boils have been observed along the levees. Teams have been providing assistance to Sponsors when seepage areas/boils and other actionable items are observed.

Summary of observations for noted period.

**Omaha-Missouri River RB:**

- ½ mile upstream of I80 overpass there are two manholes leaking water
  - City of Omaha was notified and is working on it
- Levee system appears to be in relatively good shape
  - No boils have been observed on either side of the river
  - Closure structures are in place
- Gate at M2.89 closed but water still flowing on landside of levee from surcharged storm drain
- Gate at M3.29 was open with water flowing out on land side. Sponsor was notified, gate was closed and flow stopped.
- Gate at M12.0 appears to be leaking on landside levee toe. Sponsor notified and they are working on a plug.
- Levee freeboard was >8'

**L627-MO River LB & Indian Creek RB:**

Nothing to report

**L624-Mo River & Indian LB & Mosquito Creek RB:**

- Levee system appears to be in relatively good shape
- Gates open and water flowing at Mile 6.61 and Mile 7.14 and sponsor is aware and addressing the issues
- Levee freeboard on Missouri River was 6'
- Levee freeboard on Indian Creek was >8'
- Levee freeboard on Mosquito Creek was 6'

**L624-627/614/611-Mosquito Creek and Upper Pony Creek:**

Nothing to report

**L611/614-MoRiver LB & Upper Pony Creek Ditch LB:**

- Levee system has good maintenance and surveillance
  - Sponsor is very active and using prison labor to fill rodent holes

- Riprap quantities determined and placement started

**L601-Watkins Ditch RB:**

Nothing to report

**L601/594:**

Nothing to report

**L594/575-BW,PV,Waubonsie:**

Nothing to report

**L575-BW,McKissock, Buchanan, Atchison, Hamburg:**

- Landside seepage appears to be increasing
- Freeboard at breach is 5.4'
- The new target elevation on the Hamburg levee is 919
- Landside is filling toward the south and the breach is widening
- The levee section in the area underwent a major breach just south of the 3 former partial failures at RM 554 +/-
  - At 0957 a whirlpool was noticed near a relief well ~200' downstream of earlier levee repairs
  - Within 5-6 minutes a breach formed
  - By 1015 10's of gps were flowing and the breach was 10-15'
  - Breach continued to grow
  - National Guard, Bryan Flere, and Bob Willcuts arrived on site
  - By 1110 the police were closing down access via road closures
- Inundation maps for WW23 and XX23 show no inundation however it clearly appears that there would be several feet of inundation without the levee

**L550/561-Missouri River LB:**

- River elevation has dropped 1' due to water flow through breach area

**L536/550-Turkey Creek:**

Povich and Hendrix report:

- L536 Levee district is in fair shape
  - From inundation maps, area would be flooded in several areas even with a levee break (visually several feet of inundation in the event of a breach)
  - This should be followed up with GIS
- L550 Levee should be closely monitored
  - Sloughing (150' long section) on internal drainage ditches adjacent to berm toe
  - Damp spots on berm as well as isolated case of seepage through animal burrow

- Boil field to the north (NWOMR-L550-jmh023) seems similar but there are 100's of boils
- Sponsors are aware of these issues

**R616/613-MO River RB and Papillion Creek LB:**

Nothing to report

**R613-Platte LB and Papillion RB and MO River RB:**

Nothing to report

**Lake Waconda:**

Nothing to report

**R573-MO River RB:**

- Levee was in good condition and no issues were identified that weren't being addressed already
  - Corps team walked entire levee.
  - Team observed rodent holes being filled with cement grout.

**R562-Peru:**

- All existing boils look stable
- Flagged rodent holes to be backfilled

**R548- MO River and Little Nemaha:**

- Observed 2 drainage structures that appeared very leaky, essentially an open connection
- Observed lateral cracking in LS rut on crest of L. Nemaha RB up to 1' deep and 1" wide

**R520-MO River RB:**

Nothing to report



**NEBRASKA & IOWA  
LEVEE SYSTEM SIT REP  
Efforts through 1500 13 June 2011 (Monday)**

**Missouri River Levee Systems (Federal Levees):** Multiple teams comprised of Omaha District and out-of-District staffs continue to coordinate with local sponsors on any issues/concerns they may have, as well as conduct surveillance on levee conditions. Seepage areas/boils have been observed along the levees. Teams have been providing assistance to Sponsors when seepage areas/boils and other actionable items are observed.

Summary of observations for noted period.

**Omaha-Missouri River RB:**

- An open gate with water flowing from it was found in Omaha, the sponsor was notified and the gate was closed
- South Omaha flood wall FB of 8.75'
- Observed areas of levee system appears to be in good condition
  - 8-10' of freeboard throughout
  - Relief wells observed were flowing very well
  - Closure structures are in place and look good

**L627-MO River LB & Indian Creek RB:**

Nothing to report

**L624-Mo River & Indian LB & Mosquito Creek RB:**

- Missouri River FB of 6', Mosquito CR FB of 6', Indian CR FB of 8'
- Sand bagging occurring at low spots to regain 3 feet of freeboard on both left and right bank Indian Creek along forecasted river stage
- Inspection found the slope along power plant perimeter already revetted with rock riprap

**L624-627/614/611-Mosquito Creek and Upper Pony Creek:**

- At RM 617 pump station there was water was ponding on the street
- RWs observed were flowing

**L611/614-MoRive LB & Upper Pony Creek Ditch LB:**

- Levee appeared in good condition with significant maintenance and sponsor activity.
- Sponsor surveillance discovered erosion issue at 8 pm. Fencelike area perpendicular to Federal Levee had accumulated soil causing a dam. Low spot was found at levee tow. Scouring has resulted.

**L601-Watkins Ditch RB:**

- Levee section in good condition with no observable maintenance

**L601/594:**

Nothing to report

**L594/575-BW,PV,Waubonsie:**

- Levee section in good condition with no observable maintenance.
- Vegetation is too high to do good surveillance

**L575-BW,McKissock, Buchanan, Atchison, Hamburg:**

- Levee breeched reported at 0957, June 13 immediately South of the previous breach. More information as available.
- State Troopers closed roads in area of breach at 1100, June 13
- Hwy 333 into Hamburg is about to be closed and alternative routes into the city will need to be taken
- Benton Washington system (HWY 2 upstream to north end) is in reasonable shape. Boils remain unchanged and sponsor repairs are ongoing.
- From HWY 2 to Missouri state line, levee section is in fair shape. Burrows are being plugged, relief wells are being cleaned.

**L550/561-Missouri River LB:**

- Berm added by sponsor to repair erosion is cracking and showing signs of movement
- Sponsor has been advised to repair

**L536/550-Turkey Creek:**

Nothing to report

**R616/613-MO River RB and Papillion Creek LB:**

Nothing to report

**R613-Platte LB and Papillion RB and MO River RB:**

Nothing to report

**R573-MO River RB:**

Nothing to report

**R562-Peru:**

- Closure at south end near pump station looks great
- No change in boils

**R548- MO River and Little Nemaha:**

Nothing to report

**R520-MO River RB:**

Nothing to report

**Lake Waconda (Non-Federal):**

Nothing to report

**NWO**

---

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 18, 2011 5:03 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; [REDACTED], [REDACTED] NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD; [REDACTED] NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] S NWO; [REDACTED] M SAW  
**Cc:** [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 18 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 18 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

fyi

Classification: UNCLASSIFIED  
Caveats: NONE

**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**18 June 2011**

I would like to start out by clarifying a statement I made last night. I said that despite record releases for more than 2 weeks now, the reservoir system has continued to gain storage nearly every day. I used the term storage to mean the water stored in the reservoirs, rather than the empty storage space available in the reservoirs. So to be clear, what I meant was that additional water has accumulated in the reservoirs over the past two weeks, reducing the amount of empty storage space available.

We posted the updated reservoir forecast on the web this afternoon. There were no significant changes to the release schedule, only a minor adjustment in Fort Randall releases again.

As you know yesterday we announced that we would be increasing the peak releases from Oahe and Big Bend to 160,000 cfs. We're doing this to transfer water from Oahe into Fort Randall to better balance the remaining flood control storage. We have not changed the peak releases at Fort Randall and Gavins Point; they remain at 150,000 cfs.

If the weather continues to deteriorate, we will lose our ability to manage the reservoirs with this type of intrasystem adjustments and may be driven to reevaluate releases from Fort Randall and Gavins Point.

Therefore, release schedule for the 6 dams are as follows:

- Fort Peck –Releases remain at 65,000 cfs today and tomorrow, and reduce to 60,000 cfs on Monday as inflows drop off.
- Garrison – releases remain at 150,000 cfs today
- Oahe and Big Bend –Releases from both projects were increased to 155,000 cfs today, and will be increased to 160,000 cfs on Sunday..
- Fort Randall – releases will remain at 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.
- Gavins Point – releases remain at 150,000 cfs.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 65%, down 52% from this year's peak

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 69%, down 48% from this year's peak

As of June 17

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 54% (-65%)

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 42% (-72%)

**From:** Farmer, Monique L NWO  
**Sent:** Saturday, June 18, 2011 4:57 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** Your PowerPoint (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Jody:

Once you edit your presentation to what you intend to use tomorrow, please email it to me so I can ensure we include it with the other electrons we plan to place on a CD to provide to the Omaha World Herald.

Thanks,

Monique Farmer  
Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District  
(402) 996-3877  
(402) 779-1460

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[www.twitter.com/OmahaUSACE](http://www.twitter.com/OmahaUSACE)

[www.flickr.com/OmahaUSACE](http://www.flickr.com/OmahaUSACE)

[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Saturday, June 18, 2011 4:07 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; DLL-CENWO-OD-GA; [REDACTED]  
NWO; [REDACTED] NWD02; [REDACTED] HQ02; [REDACTED] NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; Schenk, Kathryn M NWO; [REDACTED] NWO;  
[REDACTED] @ POD; [REDACTED] NWO  
**Subject:** Garrison Spillway 6-18-2011 (UNCLASSIFIED)  
**Attachments:** DSC00056.JPG; DSC00052.JPG; DSC00054.JPG

Classification: UNCLASSIFIED  
Caveats: NONE

All,

Shortly before noon today, our surveillance team reported a rooster tail on the spillway slab immediately downstream of Spillway Gate 24. The gate was closed to investigate. It was determined that a rubber seal was protruding from the joint downstream of the gate. The spillway gate was reopened shortly after the inspection. The force of the water being released from the gate removed the seal from the joint. No more rooster tail.

See attached photos.

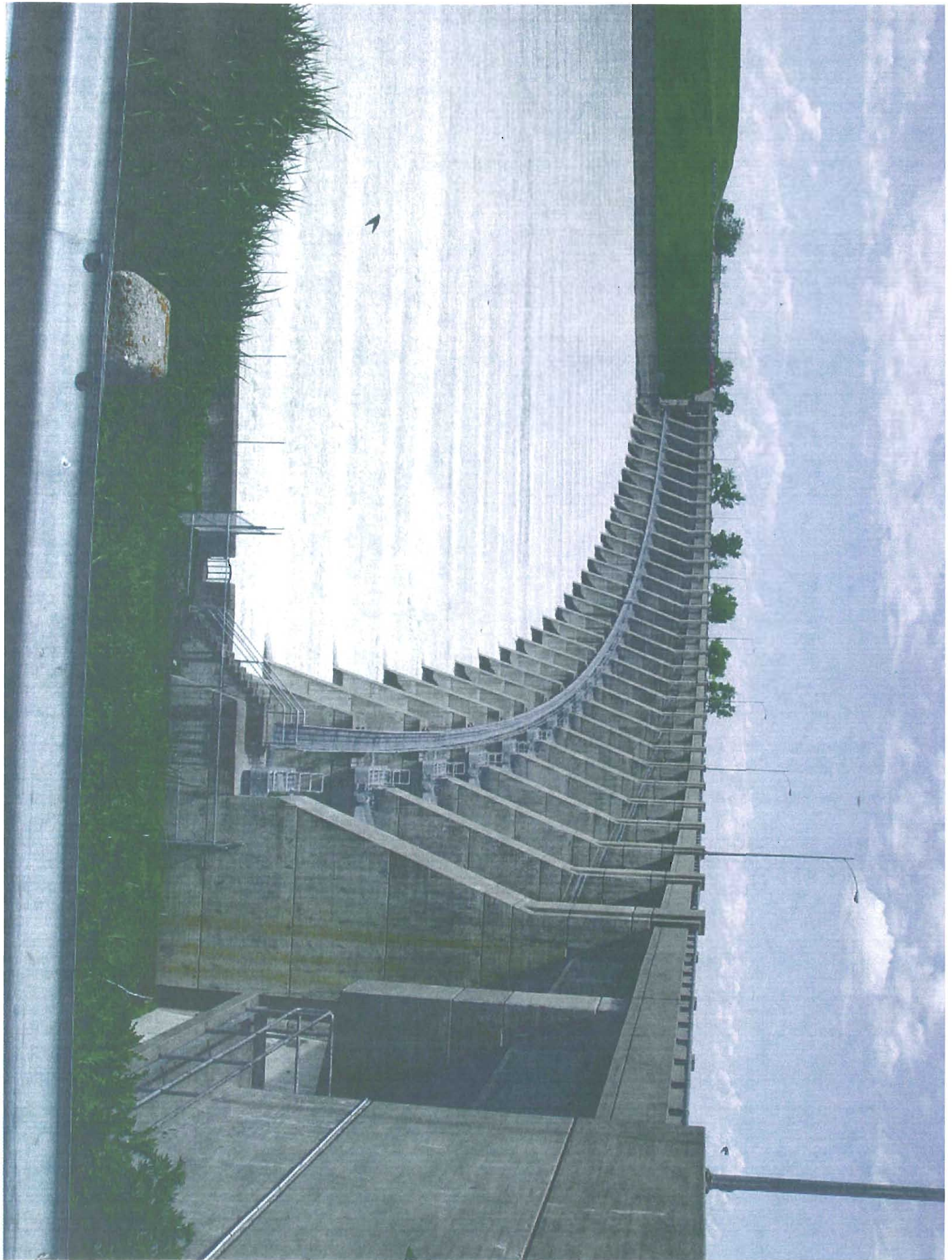
[REDACTED]

Classification: UNCLASSIFIED  
Caveats: NONE

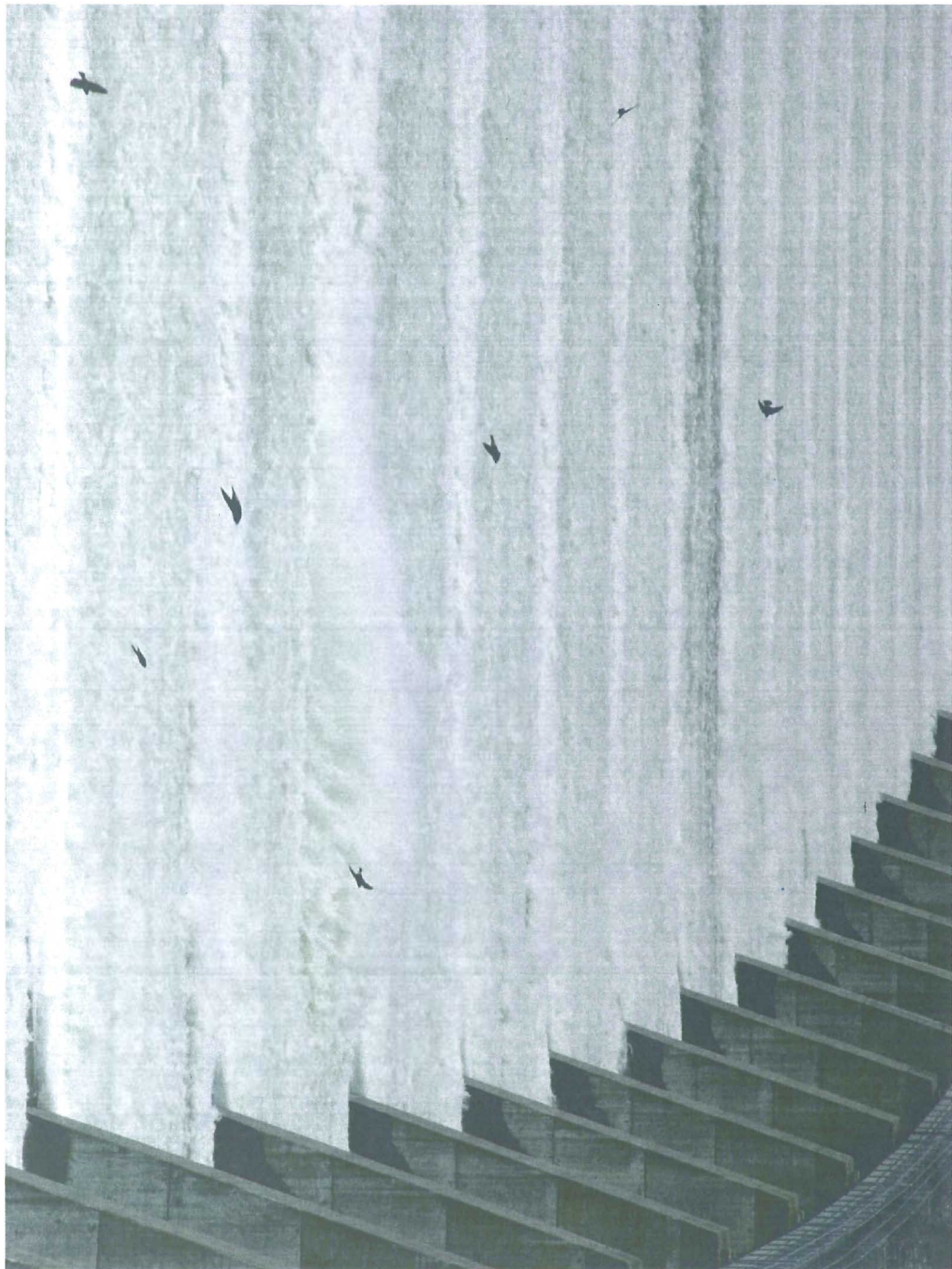












[REDACTED] NWO

---

**From:** [REDACTED] NWD02  
**Sent:** Saturday, June 18, 2011 2:08 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: inflows (UNCLASSIFIED)  
**Attachments:** saturday\_inflows

Classification: UNCLASSIFIED  
Caveats: NONE

Better than yesterday, not as good as this morning.

[REDACTED]  
Reservoir Regulation Team Lead  
Missouri River Basin Water Management,  
Northwestern Division, USACE  
402.996.3870  
402.996.3898 (fax)

-----Original Message-----

From: Kevin Low [<mailto:Kevin.Low@noaa.gov>]  
Sent: Saturday, June 18, 2011 2:06 PM  
To: [REDACTED] NWD02  
Cc: Kevin Low  
Subject: inflows

Here they are....

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** MRJIC  
**Sent:** Saturday, June 18, 2011 1:41 PM  
**Subject:** \*\*\*New Phone Number\*\*\* Missouri River Joint Information Center CODEL Call 5PM  
(Central) Daily \*\*\* New Phone Number\*\*\*

Classification: UNCLASSIFIED  
Caveats: NONE

Reminder: The daily call will occur at 1700hrs/CT. Call in information is as follows:

Access Code: [REDACTED]  
Security Code: [REDACTED]

This call is intended for Congressional Delegation, Tribes, State Government, Local Government, and Press. Please do not distribute the number to the general public, the JIC is set up with email and call in accessibility to answer questions for the general public.

General format includes updates from the Hydrometer logical Center (HPC), the Missouri River Basin Water Management Division, USACE Omaha District Emergency Operations Center, USACE Kansas City District Emergency Operations, followed by a Questions and Answer opportunity.

Thank you.

The Missouri River Joint Information Center (MRJIC)

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Saturday, June 18, 2011 12:15 PM  
**To:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; Schenk, Kathryn  
M NWO; [REDACTED] NWO; [REDACTED] NWO; Farhat, Jody S NWD02; Bertino, John  
[REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO;  
[REDACTED] NWO  
**Cc:** [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO  
**Subject:** Flood Report #16 - Fort Peck Project (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

All - Releases from Fort Peck Dam continue at 65,000 cfs with 13,000 cfs through the power plants and 52,000 cfs through the spillway. Fort Peck pool elevation was 2252.23 at 0700 today. This is a drop of 0.07 ft in the last 24 hours. This is welcome news and hopefully continues.

The weather is nice and sunny today with a light breeze from the southwest.

No issues were reported on the dam or spillway in the past 24 hours. So far, six muskrats have been caught in the Relief Well Channel. Water in the Relief Well Channel is clear.

Power plant staff is trouble shooting lake level recorder problems. They hope to have it corrected today. Manual readings will be taken until repairs are complete.

[REDACTED]  
U.S. Army Corps of Engineers  
Operations Project Manager  
Fort Peck Project  
Fort Peck, Montana 59223  
PH: [REDACTED]

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Blair, Amy E NWK  
**Sent:** Saturday, June 18, 2011 12:09 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: background info for BG McMahon vist (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

I feel comfortable with her first question, based on the Master Manual TPs that have been previously developed, but I am not 100% clear on how to answer her rainfall question. Are you the correct person to help me answer that?

Thank you!

---

From: Roe, Melissa [<mailto:Melissa.Roe@mail.house.gov>]  
Sent: Friday, June 17, 2011 3:37 PM  
To: Blair, Amy E NWK  
Subject: background info

Hi Amy,  
I'm putting together some info for my boss' meeting BG McMahon next week.

Can you send me a paragraph or two explaining what the master manual lays out as guidelines for the releases that have affected our current situation? Also, I believe I read the Corps was operating under assumptions of average rainfall. Is that correct and how much was that exceeded?

I want to make sure I provide a clear picture of how the master manual works when things go as expected and what kind of leeway it allows.

Thanks for your help!

Melissa Roe  
Deputy Chief of Staff  
Office of Congressman Sam Graves (MO-06)  
113 Blue Jay Drive, Suite 100, Liberty, MO 64068  
p. (816) 792-3976  
f. (816) 792-0694  
[melissa.roe@mail.house.gov](mailto:melissa.roe@mail.house.gov)

Classification: UNCLASSIFIED  
Caveats: NONE

**NWO**

---

**From:** [REDACTED]; NWD02  
**Sent:** Saturday, June 18, 2011 12:02 PM  
**To:** Mcallister, Roy F. Jr NWO; CENWO-EOC NWO; Williamson, Eileen L NWO; [REDACTED]  
MVR; Farhat, Jody S NWD02; [REDACTED] / HQ02; [REDACTED] HQ02; [REDACTED]  
HQ02; [REDACTED] / HQ02; [REDACTED] LRH; [REDACTED] LRH; [REDACTED]  
MVM; [REDACTED] LRH  
**Cc:** [REDACTED] NWO; [REDACTED] NWD02; Farhat, Jody S NWD02; [REDACTED]  
NWD02; [REDACTED] NWD-OMAHA; [REDACTED] NWD02; [REDACTED]  
NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02;  
[REDACTED] NWD02; [REDACTED] RMC; [REDACTED] NWD02;  
[REDACTED] NWD; [REDACTED] MVD; DLL-CELRD-RBW;  
[REDACTED]; [REDACTED] HQ02; [REDACTED] HQ; [REDACTED]  
[REDACTED] SAW; [REDACTED] MVD  
**Subject:** RE: Missouri River Basin Water Management Division Situation Report of 6-18-11  
(UNCLASSIFIED)  
**Attachments:** Missouri River Basin Water Management Situation Report 6-18-11.docx

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] Eileen,

Today's NWD Water Management situation report is attached.

[REDACTED]  
Northwestern Division  
Corps of Engineers

[REDACTED]@usace.army.mil

-----  
Classification: UNCLASSIFIED

Caveats: NONE



## Missouri River Basin Water Management Situation Report – 6-18-11

### Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two being near their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. The relatively high inflows that have been coming into Fort Peck and Garrison Reservoirs will likely continue. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: <http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULLOMR1>.

**Table 1. Key Reservoir Data (through 0000 hrs 6/18/11)**

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway	Current Level feet msl	24-hr Change feet
			Gates feet msl		
Fort Peck	67.0	65.6	2250	2252.2	0.0
Garrison	148.0	148.6	1854	1853.8	0.0
Oahe	156.0	150.5	1620	1618.7	0.1
Big Bend	150.0	148.6	1423	1419.7	0.0
Fort Randall	163.0	143.2	1375	1364.3	0.1
Gavins Point	152.0	150.3	1210	1207.8	0.1

Based on the current level data for the upper three reservoirs, the amount of remaining storage has been changing in its distribution among the upper three, larger reservoirs. Fort Peck has become more negative as water is stored higher on the raised spillway gates (surcharged above exclusive flood control). With the increased releases from Fort Peck and the increase in tributary inflows, Garrison Reservoir is rising and will be going into surcharge over the next week and a half. Oahe will not be surcharged because there are no plans at this time to use its spillway, which would result in the raised gates and the potential to surcharge that reservoir. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use the Oahe spillway at this time.



**Table 2. Reservoir Storage Data (through 0000 hrs 6/18/11)**

<b>Reservoir</b>	<b>Current</b>	<b>Total</b>	<b>Remaining</b>	<b>Exclusive</b>	<b>% Excl Left</b>
	<b>kAF</b>	<b>kAF</b>	<b>kAF</b>	<b>kAF</b>	
Fort Peck	19,018	18,463	-555	971	-57
Garrison	23,711	23,821	110	1,489	7
Oahe	22,621	23,137	516	1,102	47
Big Bend	1,622	1,798	176	60	100
Fort Randall	4,360	5,418	1,058	985	100
Gavins Point	388	450	62	57	100

Releases from all six reservoirs are currently exceeding records prior to 2011. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. Beginning today, releases from Oahe and Big Bend reservoirs will be increased to 160,000 cfs to gain storage space for future rainfall events affecting Fort Peck and Garrison reservoirs levels. The other reservoir releases are currently being maintained at their anticipated maximum releases. Full listing of the reservoir data through mid-July is available at: <http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html>.

**Table 3. Reservoir Release Comparisons (through 0000 hours 6/18/11)**

<b>Reservoir</b>	<b>Yesterday</b>	<b>Forecast</b>	<b>7 days out</b>	<b>14 days out</b>	<b>Pre-2011</b>
	<b>kcfs</b>	<b>Today</b>	<b>25 June</b>	<b>02 July</b>	<b>Record</b>
	<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>	<b>kcfs</b>
Fort Peck	65.6	65	60	60	35
Garrison	148.6	150	150	150	65
Oahe	150.4	155	160	160	59
Big Bend	148.6	155	160	160	74
Fort Randall	143.2	143	148	148	67
Gavins Point	150.3	150	150	150	70

## River Conditions

Levees have been constructed by the Corps at numerous locations, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases move through their downstream reaches and inflows from the downstream reaches and localized precipitation joins these high releases. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

**Table 4. Missouri River Stage Data for 6/18/11 at 0600 CDT**

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	18.7	20.6	mid-Jun
Pierre, SD	13	18.9	18.7	mid-Jun
Sioux City, IA	30	33.6	35-37	mid-Jun thru July
Decatur, NE	35	37.8	40-42	mid-Jun thru July
Omaha, NE	29	33.5	34-36	mid-Jun thru July
Nebraska City, NE	18	26.1	27-28+	mid-Jun thru July
St. Joseph, MO	17	23.4	27-32	mid-Jun thru July
Kansas City, MO	32	26.0	30-39	mid-Jun thru July
Waverly, MO	20	24.6	27-31	mid-Jun thru July
Boonville, MO	21	21.7	27-33	mid-Jun thru July
Hermann, MO	21	21.2	27-33	mid-Jun thru July

Figures 1 and 2 present the plots of the 0600 hour stages at Bismarck and Pierre, respectively. The stages at Bismarck have not reached the initial estimated levels as the Garrison Reservoir releases have increased. The reduction is likely due to the scouring of the channel as the flows are well above the levels in recent years. The stages at Pierre have closely followed the estimated levels, being just slightly over the initial estimate for crest elevation, as the upstream Oahe Reservoir releases have reached the 150-kcfs level. Increasing releases from Oahe Reservoir to 160,000 cfs will affect stages at Pierre, However, the stages at both cities are still about 3 feet below the constructed levee crests.

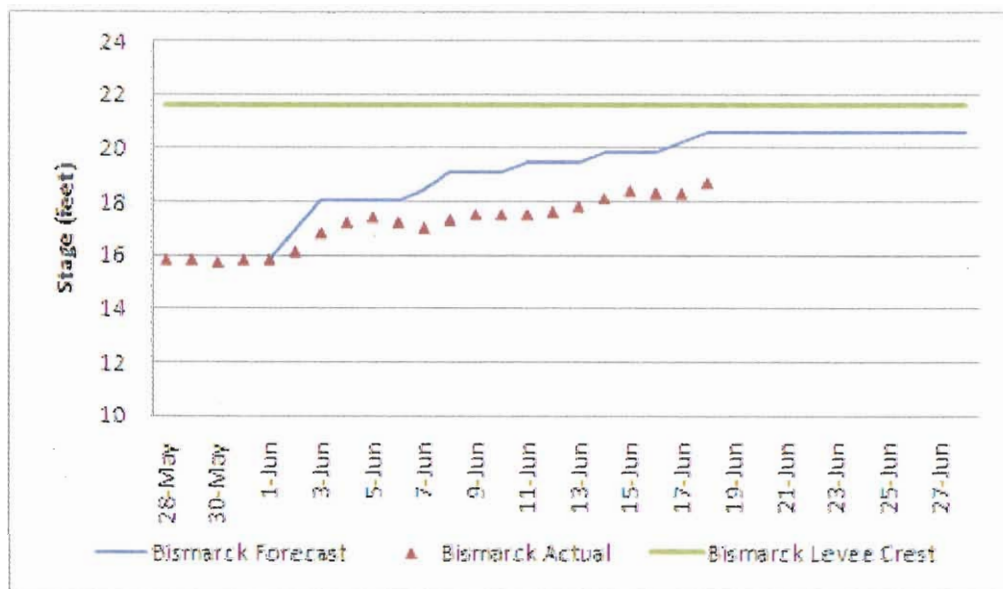


Figure 1. Missouri River stages at Bismarck, North Dakota.

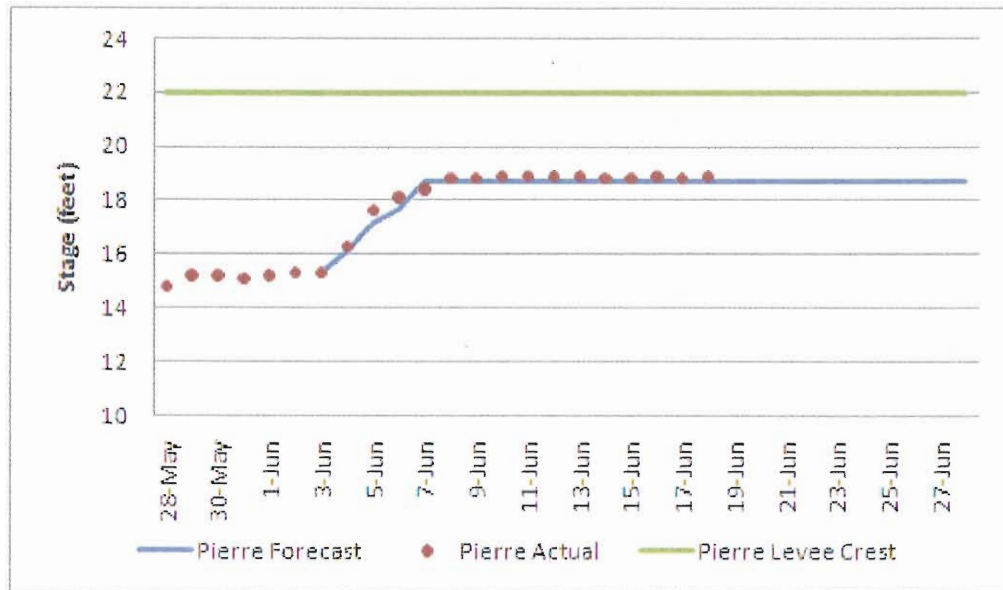


Figure 2. Missouri River stages at Pierre, South Dakota.

### Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. The next 5 days do not look good as widespread moderate to heavy rain is forecasted for much of the Missouri River Basin. Inflows from the heavier forecasted areas would drain into all reservoirs in the System. Figure 3 is the accumulated 5-day rainfall forecast for today by HPC, and Figure 4 is yesterday's mountain snowpack update by the Corps.

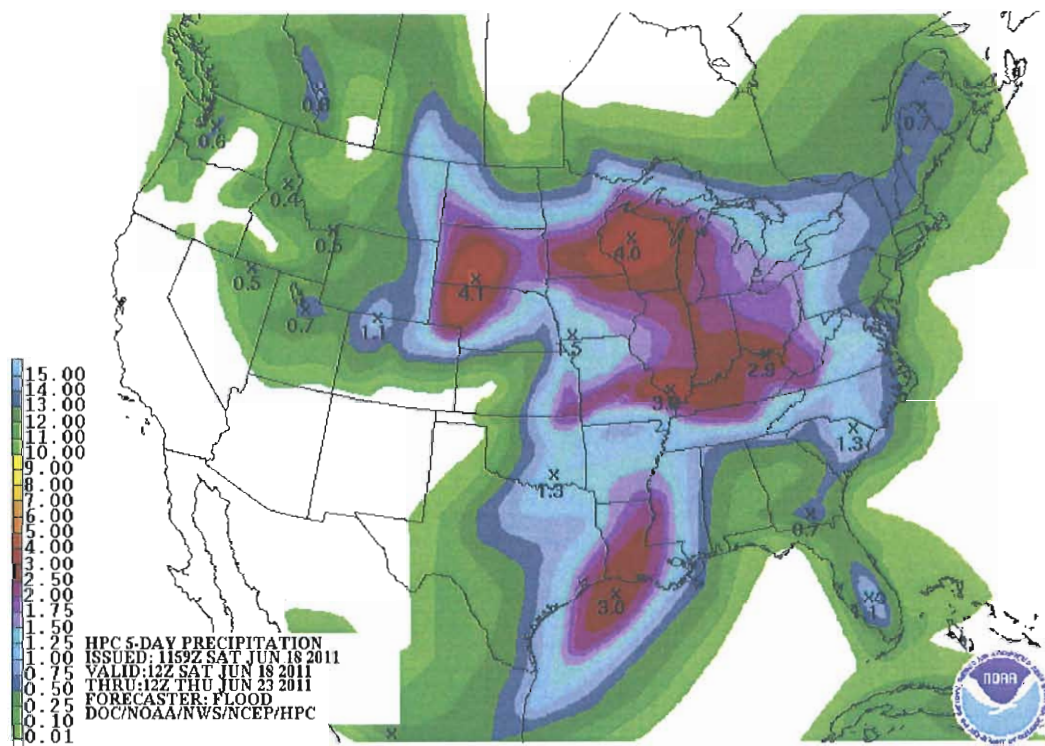
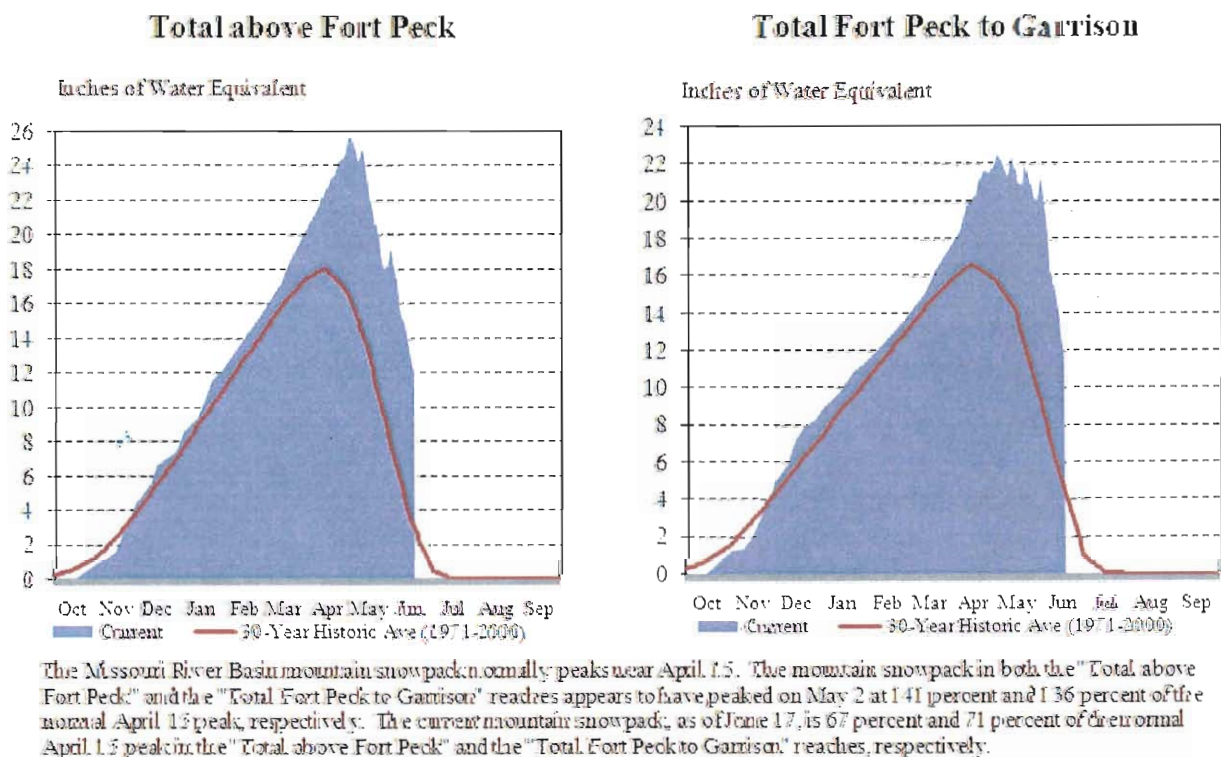


Figure 3. 5-day total QPF ending 0700 Thursday, June 23, 2011.



June 17, 2011

Provisional data. Subject to revision.

Figure 4. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 17, 2011.



## Current Actions and Notable Information

Levee construction been completed to prepare for the high flows on the Missouri River that will result from the releases from the Missouri River Mainstem System reservoirs. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. The most recent of these levees, the Hamburg levee, has also been completed. The failure of levee L-575 occurred at river stages just under the maximum stage in 2010.

Figure 5 is a plot showing the Nebraska City (just across the river from the upper reaches of L-575) 0600 stages for 2010 and 2011 (through today), both years with high river stages. This figure shows that the river level is now above the 2010 maximum.

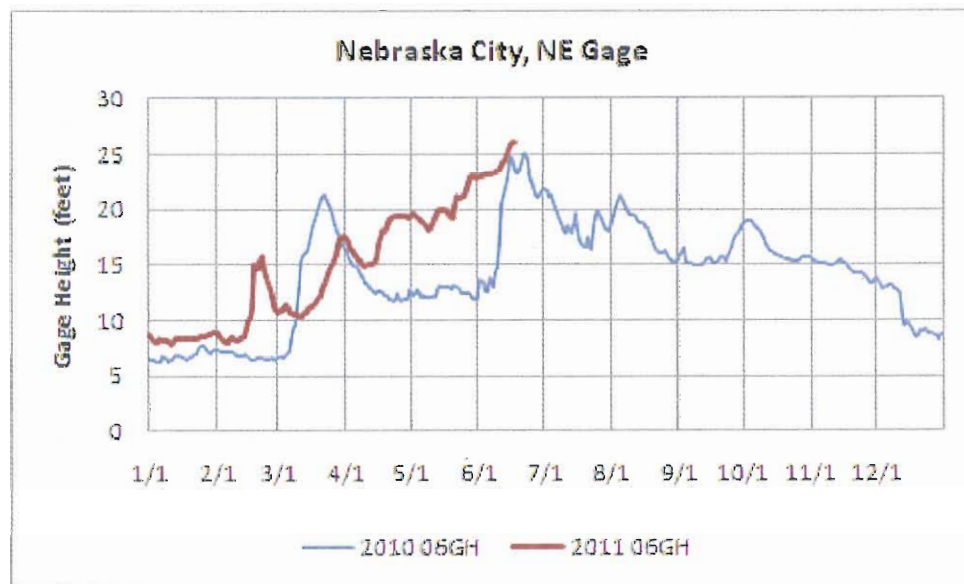


Figure 5. River stages at Nebraska City, Nebraska for 2010 and 2011.

A second levee failed at Big Lake, Missouri Monday, June 13. This location is across the river from Rulo, Nebraska. The gage plot for this location is shown below as Figure 6. Another factor, such as duration of water against the levee or back-to-back years with water against the levee appears to be playing a role in the failure of this levee as well as the levee near Hamburg.

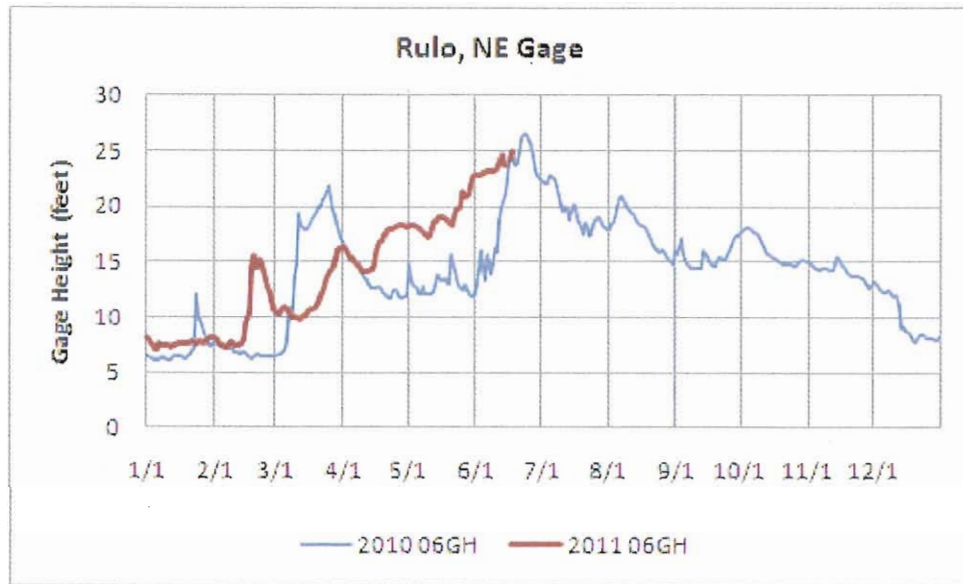


Figure 6. River stages at Rulo, Nebraska for 2010 and 2011.

Heavy rains fell over Eastern Montana and most of the lower basin between 0700 hours yesterday and today. Figure 7 shows the amount of rain that fell in the basin and surrounding area of the Central Region of the United States.

NWS Central Region: Current 1-Day Observed Precipitation  
Valid at 6/18/2011 1200 UTC- Created 6/18/11 15:41 UTC

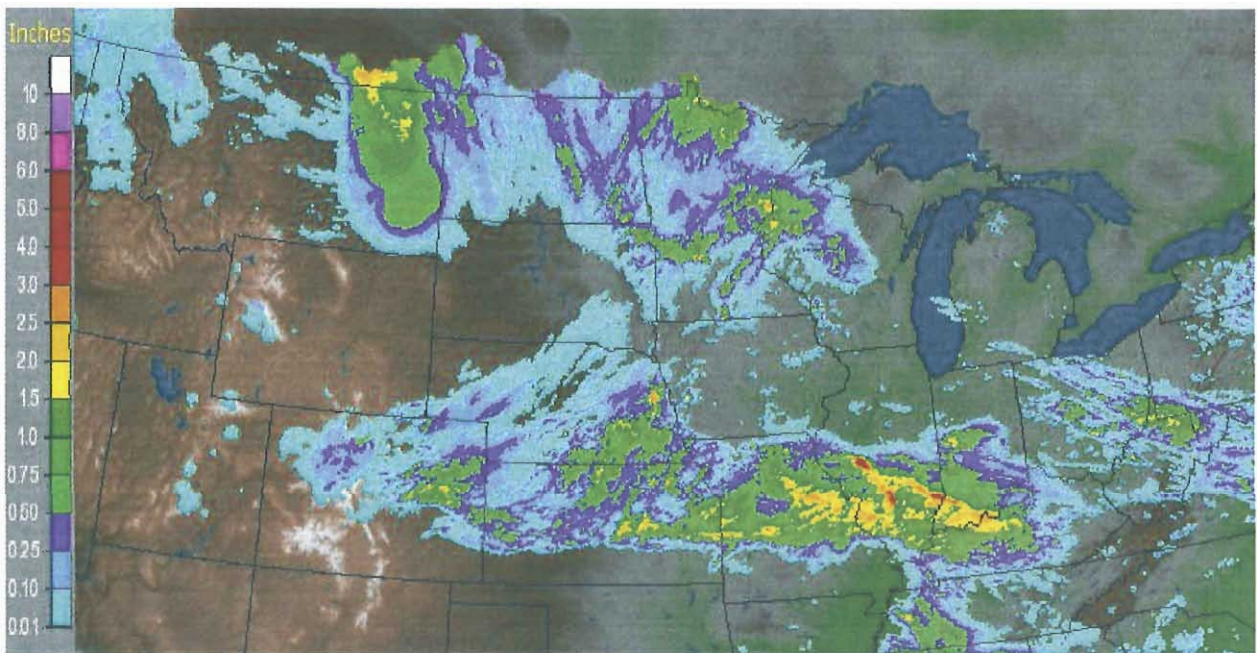


Figure 7. Rainfall on the Central Region of the United States for June 18, 2011.

[REDACTED] NWO

---

**From:** [REDACTED] NWO  
**Sent:** Saturday, June 18, 2011 10:49 AM  
**To:** Love, Raymond E MAJ NWD; [REDACTED] NWD  
**Cc:** Farhat, Jody S NWD02; Hargrave, Rosemary C NWD02  
**Subject:** WM Update - 6-18-11 (UNCLASSIFIED)  
**Attachments:** NWD Missouri Basin Update - 061811.pptx

Classification: UNCLASSIFIED  
Caveats: NONE

Ray,

Today's Update is attached.

[REDACTED]  
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers  
402-996-3861

[REDACTED]@usace.army.mil

Classification: UNCLASSIFIED  
Caveats: NONE

# Missouri River Basin Stages

18 June 2011



	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
A	Bismarck	16	18.7	150 kcfs 20.6	June 19	
B	Pierre	13	18.9	150 kcfs 18.7	June 7	
C	Yankton	20	25.0	150 kcfs n/a	June 14	
D	Sioux City	30	33.6	170 kcfs 35	June 15	44.28 (1952)
E	Decatur	35	37.8	175 kcfs 40	June 15	43.5 (1943)
F	Blair	26	31.8	175 kcfs 32	June 15	33.5 (1952)
G	Omaha	29	33.5	175 kcfs 34	June 16	40.2 (1952)
H	Nebraska City	18	26.1	200 kcfs 27	June 16	27.19 (1993)
I	Brownville	33	41.7	205 kcfs 43	June 16	44.3 (1993)
J	Rulo	17	25.0	210 kcfs 25.5	June 17	26.63 (2010)
K	St. Joseph	17	23.4	215 kcfs 27	June 17	32.07 (1993)
L	Atchison	22	26.1	215 kcfs 30	June 17	31.63 (1993)
M	Leavenworth	20	21.8	215 kcfs 27	June 17	35.34 (1993)



# Missouri River Basin Stages

18 June 2011



	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages	Projected Date **	Record Stage (Year)
N	Kansas City	32	26.0	220 kcfs 30 350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	25.0	220 kcfs 28 350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	21.7	220 kcfs 25 350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	24.6	230 kcfs 27 370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	22.7	235 kcfs 26 370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	25.5	250 kcfs 32 410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	21.7	260 kcfs 27 420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.1	260 kcfs 27 430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	17.1	290 kcfs 24 450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	23.3	300 kcfs 30 470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	21.2	300 kcfs 27 470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	18.0	300 kcfs 23 470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	24.4	300 kcfs 28 470 kcfs 37	June 20	40.04 (1993)

**[REDACTED] NWO**

---

**From:** [REDACTED] NWO  
**Sent:** Saturday, June 18, 2011 9:08 AM  
**To:** [REDACTED] NWO; [REDACTED] NWO; DLL-CENWO-OD-GA; [REDACTED]  
NWO; [REDACTED] NWD02; [REDACTED] HQ02; [REDACTED] NWO; Farhat, Jody S  
NWD02; [REDACTED] NWO; [REDACTED] NWO; [REDACTED] NWO; [REDACTED]  
[REDACTED] NWO; [REDACTED] NWO; Schenk, Kathryn M NWO; [REDACTED] NWO;  
Tabata, Allyn Y@ POD; Worden, Robert J NWO  
**Subject:** Today's Staff Notes (UNCLASSIFIED)  
**Attachments:** 6-18 Garrison Flood Fight Daily Staff Notes.docx; Main Stem Regulation Forecast - Three-Week.htm

Classification: UNCLASSIFIED

Caveats: NONE

Attached are today's notes, along with the current 3-week forecast...

[REDACTED]  
Acting Operations Project Manager  
Garrison Project

Classification: UNCLASSIFIED

Caveats: NONE

**Garrison Flood Fight  
Daily Staff Notes  
Saturday, June 18, 2011**

**Forecast/Flows/River Monitoring:**

- Lake Sakakawea:
  - Current Reservoir Elevation: 1854.01. Yesterday's elevation: 1853.70
  - Current Tail water Elevation 1684.50. Yesterday's elevation 1684.19
  - Stilling Basin (a.k.a. Spillway Pond) elevation: 1687.8
  - Estimated Inflows 175,600 cfs. Releases: 150,000 cfs.
  - Release Schedule: Increase to 150,000 cfs today.
  - Spillway gates #'s 1 through 28 are open 2 feet.
  - Current release distribution: Power Plant - 31,000 cfs, Regulating Tunnels - 58,000 cfs, Spillway - 61,000 cfs.
  - We are shifting our releases between the regulatory tunnels and the power plant to provide load control for WAPA. Scheduled load and water release changes are being made at 0800 and 2000 hours.
- Fort Peck releases are 65,000 cfs and are scheduled to remain at that level through June 19th before going back down to 60,000 cfs.
- Missouri River Elevations:
  - Bismarck gage: Currently 18.39 feet. Yesterdays gage was 18.33 feet. Protection measures in Bismarck are to 21.6 feet with a forecasted crest of 20.6 feet.
  - Williston gage: The river gage as of yesterday afternoon was 30.13 feet. Previous record stage: 28.0 feet.
- Current Snowpack: Snow pack data not updated for today...
  - Ft Peck - crested at 141% of normal peak; currently 70% of the normal peak remains.
  - Garrison - crested at 136% of peak; currently 78% of the normal peak remains.

**Garrison Dam Surveillance:**

- Surveillance: Team Leader, [REDACTED], cell: ([REDACTED])  
Instrumentation: Team Leader [REDACTED], cell: ([REDACTED])
  - Spillway: Releases were increased to 60,000 cfs at 0800 hours. The Spillway stilling basin level gradually increased over the last couple days and is beginning to recede again. Spillway structure was inspected from the upper and lower catwalks and appeared to be in very good condition.
  - Embankment: Downstream slopes and crest were viewed with no significant issues identified. Relief well channel and toe road also in good condition with no concerns at this time. Some localized subsidence of waterline backfill was noted downstream of the toe. Waterline has known leaks - Water Commission has been informed and has been working with Real Estate to have a Contractor repair after high pool event.
  - East Abutment: All seeps (1 though 4) have enlarged in extent, but discharge remains clear. Project received rain last night as well.

- Tailrace: Regulatory tunnel discharges were increased from 60,000 to 75,000 cfs at 2000 hours. Splashing and rolling waves draining off the structural platform on the west side of tunnel 8 began headcutting the scour hole slopes as it drains off the platform. This is not considered to be a significant dam safety concern, but recommend that spalls be placed in the resultant scoured area to minimize maintenance.
- Currently addressing concerns regarding the surcharge of the reservoir. If the reservoir elevation rises as anticipated to elevation 1855.6, the Spillway gates would need to be raised to 3.5 feet open to provide 1 foot of freeboard. At this opening, the spillway would be releasing approximately 110,000 cfs.
- Surcharge of Reservoir: ED-DF ([REDACTED]) confirmed that wave overtopping the spillway tainter gates would be acceptable in partially open position. John Bertino is to make a recommendation on desired freeboard.

#### **Snake Creek Embankment/ Lake Audubon:**

- Surveillance:
- No new issues, plan to assess the embankment tomorrow.
- Lake Audubon has been filled to elevation 1849.5 to utilize additional storage. Currently we do not plan to increase that elevation.

#### **Williston Levee:**

- POC's [REDACTED], cell: [REDACTED].
- The inspection team found no new boils today. They feel that placing some additional sand bags has slowed the progression of the larger of the new boils.
- The contractor working on the road project worked through out the rain today and has made some progress. It is anticipated he may finish late Sunday.
- Security was a problem again yesterday. The rumor mill was much quieter.

#### **Natural Resources:**

- POC's [REDACTED], cell: [REDACTED].
- [REDACTED] and [REDACTED], from the District Office, have arrived and are assisting the Garrison Project for the next couple weeks to provide our personnel some reprieve. The assistance is much appreciated!

#### **Outside Maintenance:**

- Will continue grading and adding material to the West Spillway overlook.
- Will coordinate adding rock to the lower end of the tailrace riprap on both East and West banks, as the current and fluctuating tailrace elevations are back cutting the riprap. Current conditions will not allow access on the East bank as it is too muddy. Work will be pursued as soon as conditions permit.
- Will rebuild the sandbag berm and make repairs to the scour hole in the west side of Tunnel 8.

- Temporary water line: If a leak is noted, notify your supervisor, Chuck Phelps, or I ASAP. Also notify City of Riverdale, "Clay" at (██████████) or Charles ██████████, or home (██████████). Shutoff valves located on the line. A drawing showing the locations of these valves is posted in the Outside Maintenance shop. A valve key to close the valves is located immediately inside the front door of the maintenance building.

#### **Power Plant:**

- Going back to four units generating today and backing off again this evening to meet WAPA load demands. Changes will be made at 8:00 am and 8:00 pm. Load changes are scheduled to be made through the weekend to assist WAPA with anticipated load demands.
- Drawings for monitoring and/or automation of the regulating tunnel gates have been sent to Omaha for review/concurrence and to ensure compliance with EC 1110-2-6071, which restricts remote operations for water control features that pose life safety risk. Concerns remain that automation will further exacerbate the desire to operate these gates frequently as part of power load control for WAPA. I still want an Engineering opinion regarding whether these gates are designed for such use?

#### **Weather/Safety:**

<b>Today:</b> A 30 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 78. South wind between 10 and 16 mph, with gusts as high as 23 mph.	<b>Tonight:</b> A 40 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 56. South wind between 8 and 13 mph.	<b>Sunday:</b> A 30 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 75. Southeast wind between 8 and 17 mph, with gusts as high as 24 mph.
--	---	--

- ██████████ and ██████████ have volunteered to work on evacuation plans. I still need to coordinate with them on development of these plans.

#### **Needed Resources:**

- Overview maps to be utilized for dam safety surveillance are to be printed in Omaha and Fed-exed to the project.
- NR's placed an order for new life jackets.
- Currently working with ACE-IT and looking into upgrading our radios so that we can utilize them effectively for local communication. Cell phone coverage is spotty in several locations. Signal booster has been ordered to improve cell phone reception.
- ██████████ is working on the contract with the Conservancy District for rip rap repairs. Hope to have a contract awarded today.
- ██████████ is preparing the contract specifications for crane services necessary to place stoplogs for the inspection of the regulatory tunnels. Specifications should be completed today.

Any resource needs, safety issues, or emergencies should be directed to your team leaders/POC immediately. If they cannot be reached contact [REDACTED] (cell: [REDACTED]) / Home: [REDACTED].

**OPM Notes:**

- [REDACTED] is on a much needed and much deserved vacation. [REDACTED] will return to ND on Sunday. [REDACTED] will be Acting OPM. His cell number is ([REDACTED]) [REDACTED].
- Everyone needs to be watching for large trees/debris that is headed for our spillway. If large debris is noted, Outside Maintenance should be notified ASAP so they can launch a boat and remove the debris. Also need the power plant to walk the spillway gates daily to check for debris caught under the gates. If a large tree is noted, Dale should be notified to determine corrective actions.
- Request has been made to USGS to survey the Spillway and Tailrace Channels. Survey is currently scheduled to be done on 22 June.
- Many folks are working long hours and/or late shifts. Please watch out for each other and ensure that safety procedures are followed!

This regulation forecast was made using computed reservoir inflows based on 5-days of forecast precipitation and mountain snowmelt runoff. The regulation forecast is subject to change daily as actual events occur.

\* Indicates release changes from previous forecast

		FTPK				GARR				OAHE				BEND				FTRA			
		24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE	24EL	24ID	24OD	24GE
17	F	2252.3	70.0	65.0	5.14	1854.0	174.5	150.0	9.27	1618.7	162.7	150.0	13.90	1419.8	150.0	150.0	8.45	1364.1	151.0	143.0	9
18		2252.3	65.0	65.0	5.14	1854.1	175.6	150.0	9.28	1618.7	162.4	155.0*	13.90	1419.8	155.0	155.0*	8.41	1364.3	156.0	143.0*	9
19		2252.2	53.0	65.0	5.14	1854.2	175.3	150.0	9.29	1618.7	164.8	160.0*	13.90	1419.8	160.0	160.0*	8.35	1364.7	161.0	143.0*	9
20	M	2252.1	51.0	60.0	5.13	1854.4	172.1	150.0	9.29	1618.8	165.0	160.0*	13.90	1419.8	160.0	160.0*	8.29	1365.1	161.0	143.0*	9
21	T	2252.0	50.0	60.0	5.13	1854.4	167.8	150.0	9.30	1618.8	161.0	160.0*	13.90	1419.8	160.0	160.0*	8.25	1365.3	161.0	148.0	9
22	W	2251.9	49.0	60.0	5.13	1854.5	165.6	150.0	9.30	1618.8	161.0	160.0*	13.90	1419.8	160.0	160.0*	8.21	1365.6	161.0	148.0	9
23	T	2251.9	48.0	60.0	5.13	1854.6	158.8	150.0	9.30	1618.8	160.0	160.0*	13.90	1419.8	160.0	160.0*	8.17	1365.9	161.0	148.0	9
24	F	2251.7	47.0	60.0	5.12	1854.6	154.6	150.0	9.30	1618.8	158.0	160.0*	13.90	1419.8	160.0	160.0*	8.13	1366.2	161.0	148.0	9
25		2251.6	47.0	60.0	5.12	1854.6	149.0	150.0	9.30	1618.7	157.5	160.0*	13.90	1419.8	160.0	160.0*	8.08	1366.4	161.0	148.0	9
26		2251.5	48.0	60.0	5.12	1854.6	144.0	150.0	9.30	1618.7	157.5	160.0*	13.90	1419.8	160.0	160.0*	8.04	1366.7	161.0	148.0	9
27	M	2251.5	52.0	60.0	5.12	1854.6	154.0	150.0	9.30	1618.7	157.5	160.0*	13.90	1419.8	160.0	160.0*	8.00	1367.0	161.0	148.0	9
28	T	2251.4	56.0	60.0	5.12	1854.6	163.0	150.0	9.31	1618.7	157.5	160.0*	13.90	1419.8	160.0	160.0*	7.96	1367.2	161.0	148.0	9
29	W	2251.4	62.0	60.0	5.12	1854.7	170.0	150.0	9.31	1618.7	156.5	160.0*	13.90	1419.8	160.0	160.0*	7.92	1367.5	161.0	148.0	9
30	T	2251.5	70.0	60.0	5.12	1854.9	177.0	150.0	9.32	1618.6	155.0	160.0*	13.89	1419.8	160.0	160.0*	7.88	1367.8	161.0	148.0	9
1	F	2251.6	74.0	60.0	5.12	1855.0	175.0	150.0	9.32	1618.6	154.0	160.0*	13.89	1419.8	160.0	160.0*	7.84	1368.0	161.0	148.0	9
2		2251.7	74.0	60.0	5.12	1855.1	173.0	150.0	9.33	1618.5	153.0	160.0*	13.89	1419.8	160.0	160.0*	7.80	1368.3	161.0	148.0	9
3		2251.8	65.0	60.0	5.12	1855.2	172.0	150.0	9.34	1618.5	152.0	160.0*	13.88	1419.8	160.0	160.0*	7.76	1368.6	160.9	148.0	9
4	M	2251.8	60.0	60.0	5.12	1855.3	171.0	150.0	9.34	1618.4	152.0	160.0*	13.88	1419.8	160.0	160.0*	7.72	1368.8	160.7	148.0	9
5	T	2251.7	59.0	60.0	5.12	1855.4	170.0	150.0	9.35	1618.4	152.0	160.0*	13.88	1419.8	160.0	160.0*	7.68	1369.1	160.5	148.0	9
6	W	2251.7	54.0	60.0	5.12	1855.5	169.0	150.0	9.35	1618.3	152.0	160.0*	13.87	1419.8	160.0	160.0*	7.64	1369.3	160.4	148.0	9
7	T	2251.6	50.0	60.0	5.12	1855.6	166.0	150.0	9.35	1618.3	152.0	160.0*	13.87	1419.8	160.0	160.0*	7.60	1369.6	160.2	148.0	9
8	F	2251.5	49.0	60.0	5.12	1855.6	164.0	150.0	9.36	1618.2	152.0	160.0*	13.87	1419.8	160.0	160.0*	7.56	1369.8	160.2	148.0	9
9		2251.4	49.0	60.0	5.12	1855.7	162.0	150.0	9.36	1618.2	152.0	160.0*	13.86	1419.8	160.0	160.0*	7.52	1370.1	160.2	148.0	9
10		2251.3	48.0	60.0	5.11	1855.7	160.0	150.0	9.36	1618.1	152.0	160.0*	13.86	1419.8	160.0	160.0*	7.49	1370.3	160.2	148.0	9
11	M	2251.2	47.0	60.0	5.11	1855.8	158.0	150.0	9.36	1618.1	152.0	160.0*	13.85	1419.8	160.0	160.0*	7.45	1370.6	160.2	148.0	9
12	T	2251.1	46.0	60.0	5.11	1855.8	156.0	150.0	9.36	1618.0	152.0	160.0*	13.85	1419.8	160.0	160.0*	7.41	1370.8	160.2	148.0	9
13	W	2250.9	45.0	60.0	5.11	1855.8	154.0	150.0	9.36	1618.0	152.0	160.0*	13.85	1419.8	160.0	160.0*	7.37	1371.0	160.2	148.0	9
14	T	2250.8	44.0	60.0	5.10	1855.8	152.0	150.0	9.37	1617.9	152.0	160.0*	13.84	1419.8	160.0	160.0*	7.33	1371.3	160.2	148.0	9
15	F	2250.6	38.0	60.0	5.10	1855.8	150.0	150.0	9.36	1617.9	152.0	160.0*	13.84	1419.8	160.0	160.0*	7.30	1371.5	160.2	148.0	9

#### Project:

24EL Midnight Elevation (feet above mean sea level)  
 24ID Daily Average Inflow (kcfs)  
 24OD Daily Average Release (kcfs)  
 24GE Daily Power Generation (MWh)

#### System:

GE Daily Power Generation (MWh)  
 SG Midnight Storage (AF)  
 DSG Daily Storage Change (AF)

#### Units:

kcfs thousand cubic feet per second  
 MWh megawatt hour  
 AF acre-feet

Pagemaster: Water Management; CENWD-PDR;

Internet E-Mail Address: [Missouri.Water.Management@nwd02.usace.army.mil](mailto:Missouri.Water.Management@nwd02.usace.army.mil)

[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 18, 2011 5:03 PM  
**To:** Farhat, Jody S NWD02; McMahon, John R BG NWD; Tipton, Robert A Col NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [REDACTED] NWD; [REDACTED] NWK; Blair, Amy E NWK; Williamson, Eileen L NWO; Farmer, Monique L NWO; Johnston, Paul T HQ@ NWO; [REDACTED] NWD; [REDACTED] WD; [REDACTED] NWD; [REDACTED] M NWD02; Love, Raymond E MAJ NWD; [REDACTED] NWO; [REDACTED] S NWO; [REDACTED] M SAW  
**Cc:** [REDACTED] R NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWD02; [REDACTED] NWO; [REDACTED] NWD02  
**Subject:** RE: WM Talking Points for 18 June stakeholder call (UNCLASSIFIED)  
**Attachments:** 2011 Missouri River Flood Talking Points 18 Jun 2011.docx

Classification: UNCLASSIFIED  
Caveats: NONE

fyi

Classification: UNCLASSIFIED  
Caveats: NONE



**2011 Missouri River Flood Talking Points**  
**Missouri River Water Management**  
**18 June 2011**

I would like to start out by clarifying a statement I made last night. I said that despite record releases for more than 2 weeks now, the reservoir system has continued to gain storage nearly every day. I used the term storage to mean the water stored in the reservoirs, rather than the empty storage space available in the reservoirs. So to be clear, what I meant was that additional water has accumulated in the reservoirs over the past two weeks, reducing the amount of empty storage space available.

We posted the updated reservoir forecast on the web this afternoon. There were no significant changes to the release schedule, only a minor adjustment in Fort Randall releases again.

As you know yesterday we announced that we would be increasing the peak releases from Oahe and Big Bend to 160,000 cfs. We're doing this to transfer water from Oahe into Fort Randall to better balance the remaining flood control storage. We have not changed the peak releases at Fort Randall and Gavins Point; they remain at 150,000 cfs.

If the weather continues to deteriorate, we will lose our ability to manage the reservoirs with this type of intrasystem adjustments and may be driven to reevaluate releases from Fort Randall and Gavins Point.

Therefore, release schedule for the 6 dams are as follows:

- Fort Peck –Releases remain at 65,000 cfs today and tomorrow, and reduce to 60,000 cfs on Monday as inflows drop off.
- Garrison – releases remain at 150,000 cfs today
- Oahe and Big Bend –Releases from both projects were increased to 155,000 cfs today, and will be increased to 160,000 cfs on Sunday..
- Fort Randall – releases will remain at 143,000 cfs today and tomorrow, gradually stepping up to the peak release of approximately 148,000 cfs with the schedule dependent on the Gavins Point pool level.
- Gavins Point – releases remain at 150,000 cfs.

Peak releases are expected to continue well into August.

The forecast is based on best available information at this time; actual releases are based on conditions on the ground and are subject to change.

The mountain snowpack continues to decline.

Above Fort Peck: peaked at 141 percent of the normal peak accumulation, currently at 65%, down 52% from this year's peak

Fort Peck to Garrison: peaked at 136 percent of the normal peak accumulation, currently at 69%, down 48% from this year's peak

As of June 17

North Platte: peaked at 156 percent of the normal peak accumulation, currently at 54% (-65%)

South Platte: peaked at 150 percent of the normal peak accumulation, currently at 42% (-72%)

[REDACTED] NWO

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 18, 2011 7:26 PM  
**To:** [REDACTED] NWD02; Farmer, Monique L NWO  
**Cc:** [REDACTED] NWD02; Johnston, Paul T HQ@ NWO  
**Subject:** RE: Information Needed for press kits tomorrow (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Monique,

The extra hard copies of the Statistics are on the large table outside the JIC.

A link to the FEIS for the Master Manual including the comment appendix (appendix D) is shown below:

<http://www.nwd-mr.usace.army.mil/mmanual/feis/Index.htm>

Perhaps [REDACTED] or [REDACTED] can provide the talking points on unregulated flows.

Jody

-----Original Message-----

**From:** [REDACTED] NWD02  
**Sent:** Saturday, June 18, 2011 7:19 PM  
**To:** Farmer, Monique L NWO  
**Cc:** Farhat, Jody S NWD02  
**Subject:** RE: Information Needed for press kits tomorrow (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Monique,

1. [REDACTED] recently updated the statistics and she made several extra copies. You may be able to find them on her desk. Otherwise, they are posted to the web site at:

<http://www.nwd-mr.usace.army.mil/rcc/projdata/projdata.html>

2. I'm sure we have copies of the Master Manual comments (probably in the admin record) but I'm not sure if we could get that by 11 am tomorrow. Also, it would likely be a lot of material. It might be easier to see if Rose has some sort of summary of the comments.

3. [REDACTED] told me that he gave [REDACTED] some talking points recently on the unregulated (without system) flows.


[REDACTED]

-----Original Message-----

**From:** Farmer, Monique L NWO  
**Sent:** Saturday, June 18, 2011 6:45 PM  
**To:** [REDACTED] NWD02  
**Cc:** Farhat, Jody S NWD02  
**Subject:** Information Needed for press kits tomorrow (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

  
Could you help me track down the following information for tomorrow? Need by 11 a.m. if possible.

5 copies of the statistics for 1967-2010.

1 copy of the public comments from the Master Manual public meetings Preliminary estimations of what would have happened this spring and summer had the reservoir system not been in place.

Thanks in advance,

Monique Farmer

Media Relations Team Lead/Missouri River Joint Information Center U.S. Army Corps of Engineers Omaha District

(402) 996-3877

(402) 779-1460

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[www.youtube.com/OmahaUSACE](http://www.youtube.com/OmahaUSACE)

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED

Caveats: NONE

[REDACTED] NWO

---

**From:** Farhat, Jody S NWD02  
**Sent:** Saturday, June 18, 2011 7:46 PM  
**To:** McMahon, John R BG NWD  
**Cc:** Anderson, G Witt NWD; [REDACTED] NWD  
**Subject:** 1898 runoff slide (UNCLASSIFIED)  
**Attachments:** 1898 Runoff slide.pptx

Classification: UNCLASSIFIED

Caveats: NONE

Sir,

Attached is the slide depicting annual runoff in the Missouri River basin since 1898.

I've added this slide to the flood presentation on the web and will use it in the editorial board meeting tomorrow.

Let me know if I can be of further assistance.

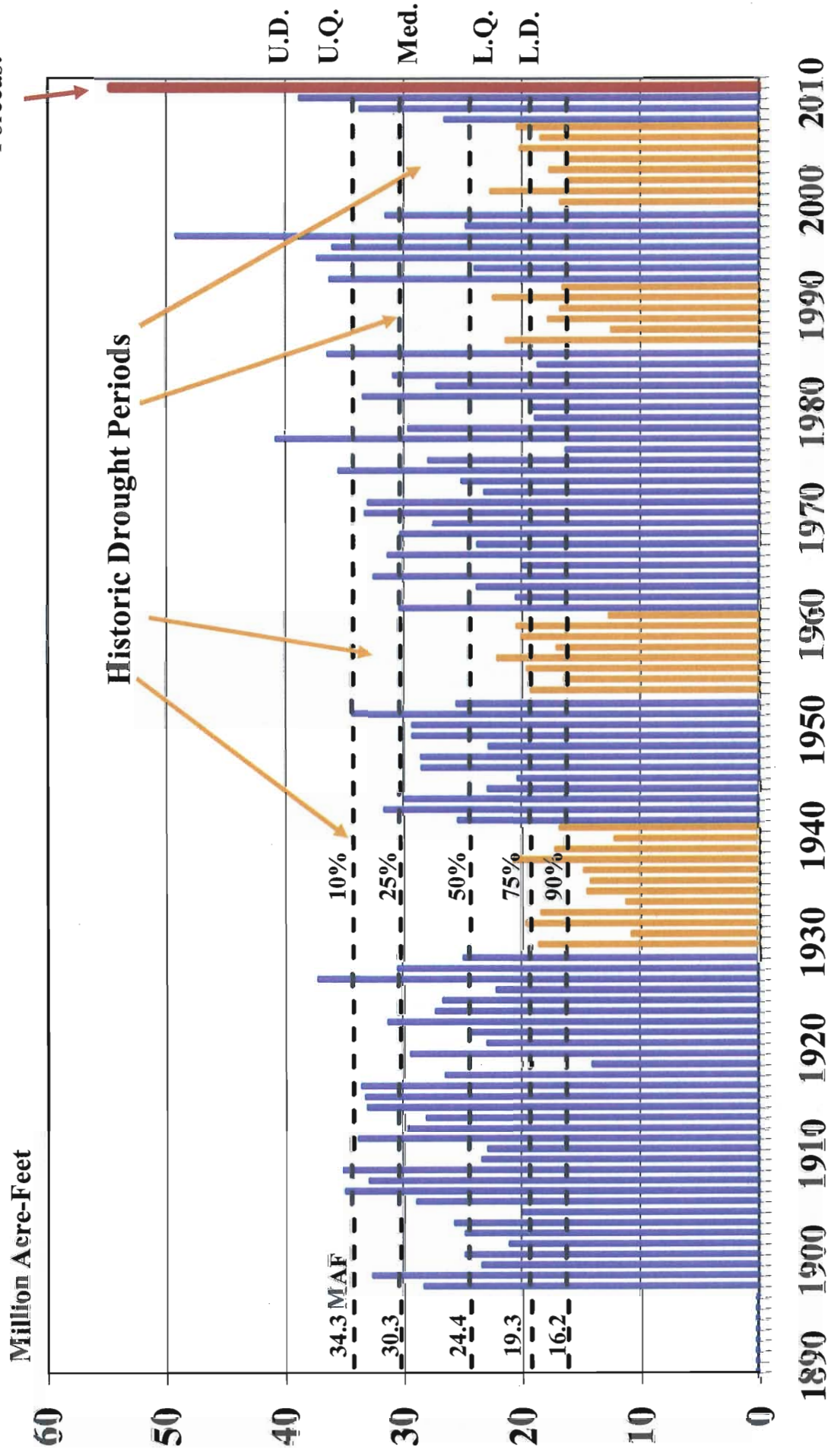
VR,  
Jody

Classification: UNCLASSIFIED

Caveats: NONE

# Missouri River Mainstem System Annual Runoff above Sioux City, IA

2011  
Forecast



**From:** Farhat, Jody S NWD02  
**Sent:** Sunday, June 19, 2011 11:39 AM  
**To:** Blair, Amy E NWK  
**Subject:** RE: background info for BG McMahon vist (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Amy, each month we produce an updated forecast that covers a range of meteorological conditions: wet, dry and normal. Even our wet scenario on 1 May did not show the need to increase releases immediately or to record levels. The unprecedented rain in Montana is the reason releases are at record levels - this could not have been foreseen.

Jody

-----Original Message-----

**From:** Blair, Amy E NWK  
**Sent:** Saturday, June 18, 2011 12:09 PM  
**To:** Farhat, Jody S NWD02  
**Subject:** FW: background info for BG McMahon vist (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Jody,

I feel comfortable with her first question, based on the Master Manual TPs that have been previously developed, but I am not 100% clear on how to answer her rainfall question. Are you the correct person to help me answer that?

Thank you!

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**From:** Roe, Melissa [<mailto:Melissa.Roe@mail.house.gov>]  
**Sent:** Friday, June 17, 2011 3:37 PM  
**To:** Blair, Amy E NWK  
**Subject:** background info

Hi Amy,  
I'm putting together some info for my boss' meeting BG McMahon next week.

Can you send me a paragraph or two explaining what the master manual lays out as guidelines for the releases that have affected our current situation? Also, I believe I read the Corps was operating under assumptions of average rainfall. Is that correct and how much was that exceeded?

I want to make sure I provide a clear picture of how the master manual works when things go as expected and what kind of leeway it allows.

Thanks for your help!

Melissa Roe  
Deputy Chief of Staff  
Office of Congressman Sam Graves (MO-06)

113 Blue Jay Drive, Suite 100, Liberty, MO 64068  
p. (816) 792-3976  
f. (816) 792-0694  
[melissa.roe@mail.house.gov](mailto:melissa.roe@mail.house.gov)

Classification: UNCLASSIFIED  
Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE

[REDACTED] NWO

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**From:** Farhat, Jody S NWD02  
**Sent:** Sunday, June 19, 2011 11:42 AM  
**To:** cedarem@hartel.net  
**Cc:** [REDACTED] NWO  
**Subject:** RE: Gavin's Point Dam (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

Kevin - At the present time we do not anticipate increasing releases beyond 150,000 cfs. I have cc'd [REDACTED] for the Omaha District, and believe he could tell you what the inundation mapping is based on and potential impacts of higher flows either from the tributaries or reservoir releases.

Jody

-----Original Message-----

From: Kevin Garvin [<mailto:cedarem@hartel.net>]  
Sent: Friday, June 17, 2011 6:08 PM  
To: Farhat, Jody S NWD02  
Subject: Gavin's Point Dam

Jody,

In listening to the call today I understand that there is the probability that releases from Gavin's may need to increase down the road if mother nature keeps up the moisture. We have kind of figured from day one that may become necessary.

I know this is like hitting a moving target, but for our Emergency Planning purposes what ranges might be possible? What ranges do we need to plan for?

Also, will we be able to get new inundation information that covers the range far enough in advance so that we can get word out to the affected citizens before the media does?

The USACE teams working this event have a tough job that few understand. Keep up the good work.

Thanks

Kevin Garvin

Director of Emergency Management

Cedar County Nebraska

402-254-6862 Office



402-640-4650 Cell

Classification: UNCLASSIFIED

Caveats: NONE

**From:** Farhat, Jody S NWD02  
**Sent:** Sunday, June 19, 2011 12:26 PM  
**To:** MRJIC  
**Subject:** RE: Ft. Peck Reservoir (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

The storage capacity of Fort Peck was incorrectly reported below. The storage capacity of Fort Peck dam measured at the top of the spillway gates when the gates are in the closed position is 18.5 MAF. As the spillway gates are raised, the reservoir gains additional storage capacity. The current volume of water stored in Fort Peck today with the spillway gates raised is 19.0 MAF.

Jody

-----Original Message-----

From: MRJIC  
Sent: Sunday, June 19, 2011 11:58 AM  
To: Farhat, Jody S NWD02  
Subject: RE: Ft. Peck Reservoir (UNCLASSIFIED)

Jody,

Could you please help me put together a response for the question addressed below.

Thanks

-----Original Message-----

From: douglas baty [<mailto:dxn3520@blackfoot.net>]  
Sent: Saturday, June 18, 2011 7:44 AM  
To: MRJIC  
Subject: Re: Ft. Peck Reservoir (UNCLASSIFIED)

Good morning. I'm quite interested in how the Corps is managing to handle all the water flowing out of Montana now. Today's Missoulian states that the elevation at Fort Peck is 2 feet above full pool, yet your note says there is still 2 MAF of storage available(as of June 12). The Corps site I found states the elevation, but does not state inflow/outflow, nor does it state what full pool is. Could you clarify this for me? Thanks. Douglas Baty-Dixon Montana.

On Jun 12, 2011, at 9:38 AM, MRJIC wrote:

> Classification: UNCLASSIFIED  
> Caveats: NONE

>  
>  
>

> -----Original Message-----

> From: MRJIC  
> Sent: Sunday, June 12, 2011 10:36 AM  
> To: 'dxn3520@blackfoot.net'  
> Subject: Ft. Peck Reservoir (UNCLASSIFIED)

>

> Classification: UNCLASSIFIED

> Caveats: NONE  
>  
> Mr. Baty: Thank you for your question. Ft Peck has a total storage  
> capacity slightly greater than 21 million acre feet (MAF). Currently,  
> Ft. Peck storage is at just less than 19 MAF.

> [REDACTED]  
>  
>  
> [REDACTED]  
> [REDACTED]  
> Missouri River Basin Water Management, Northwestern Division, USACE  
> 402. [REDACTED]  
> 402. [REDACTED] (fax)  
> -----Original Message-----  
> From: douglas baty [mailto:dxn3520@blackfoot.net]  
> Sent: Saturday, June 11, 2011 7:48 AM  
> To: Management, Missouri Water NWD02  
> Subject: Fort Peck Reservoir

>  
> Hello: I am attempting to learn how much storage capacity is still  
> available in the Fort Peck Reservoir. Could you please direct me to  
> where this information can be found? Thanks, Douglas Baty

> Classification: UNCLASSIFIED  
> Caveats: NONE

> Classification: UNCLASSIFIED  
> Caveats: NONE

> Classification: UNCLASSIFIED  
> Caveats: NONE

Classification: UNCLASSIFIED  
Caveats: NONE